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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

JULY, 94

Central Forecasting Division
Meteorological Office
London Rd
Bracknell
Berkshire
RG12 2SZ

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2. Global Data Monitoring Statistics

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

Mr. A M Radford
Observation Processing Manager
Central Forecasting Division
Meteorological Office
London Road
Bracknell
Berkshire
United Kingdom
RG12 2SZ

2 Global Data Monitoring Statistics.

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-11 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-12. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1. |bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2. SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3. PGE ≥ 25

MEAN SEA-LEVEL PRESSURE

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
ATSR	ALL	MSLP	SUR	31	0	0	1.1	5.0	5.2
CFD3491	ALL	MSLP	SUR	50	21	42	2.6	-2.9	3.9
CG2241	ALL	MSLP	SUR	23	18	78	2.9	-12.9	13.2
CG2960	ALL	MSLP	SUR	121	110	91	1.7	-12.2	12.3
CZ3694	ALL	MSLP	SUR	47	29	62	3.2	-6.7	7.4
CZ9742	ALL	MSLP	SUR	27	27	100	0.0	0.0	0.0
C6BT8	ALL	MSLP	SUR	28	0	0	0.9	5.5	5.6
C6KB6	ALL	MSLP	SUR	41	0	0	1.0	-5.3	5.4
DVRF	ALL	MSLP	SUR	144	0	0	1.0	4.9	5.0
ELIQ	ALL	MSLP	SUR	29	3	10	3.2	-6.8	7.5
ELPP9	ALL	MSLP	SUR	25	0	0	1.2	-5.6	5.7
ESDI	ALL	MSLP	SUR	23	0	0	1.1	-5.1	5.2
HZXR	ALL	MSLP	SUR	21	0	0	0.9	-4.1	4.2
KXDB	ALL	MSLP	SUR	30	7	23	1.7	-12.3	12.4
NQST	ALL	MSLP	SUR	22	0	0	1.2	-4.2	4.3
ORIN	ALL	MSLP	SUR	82	0	0	3.9	5.9	7.1
OVRE2	ALL	MSLP	SUR	27	0	0	0.9	9.6	9.6
OWOG2	ALL	MSLP	SUR	37	0	0	1.0	5.1	5.2
P3NE5	ALL	MSLP	SUR	25	0	0	1.3	5.4	5.5
UULE	ALL	MSLP	SUR	21	0	0	1.1	4.7	4.8
UUSU	ALL	MSLP	SUR	50	1	2	2.0	-5.9	6.2
VRUA4	ALL	MSLP	SUR	28	0	0	2.0	5.3	5.7
WCB5820	ALL	MSLP	SUR	77	0	0	2.7	5.8	6.4
WXY6216	ALL	MSLP	SUR	35	2	6	3.0	-5.3	6.1
WZE4928	ALL	MSLP	SUR	71	69	97	4.7	6.0	7.6
ZCAM9	ALL	MSLP	SUR	21	0	0	1.8	4.9	5.2
3EYY8	ALL	MSLP	SUR	21	0	0	3.1	-4.5	5.5
63102	ALL	MSLP	SUR	85	0	0	0.7	7.1	7.1

WIND SPEED

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
ATSR	ALL	SPEED	SUR	30	0	0	5.2	5.0	7.3
C6DY8	ALL	SPEED	SUR	29	1	3	4.3	9.0	10.0
ELLE9	ALL	SPEED	SUR	66	0	0	4.6	10.5	11.5
FNIH	ALL	SPEED	SUR	87	3	3	5.9	9.9	11.5
HPEW	ALL	SPEED	SUR	27	0	0	4.3	12.8	13.5
JMLQ	ALL	SPEED	SUR	31	0	0	4.6	5.0	6.8
Y5DR	ALL	SPEED	SUR	30	0	0	5.4	8.2	9.8

WIND DIRECTION

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
C6DZ	ALL	DIRN.	SUR	22	0	0	33.9	-40.5	52.9
C6HQ8	ALL	DIRN.	SUR	21	0	0	86.2	14.8	87.5
ELIQ	ALL	DIRN.	SUR	22	1	5	64.1	59.2	87.3
SYMK	ALL	DIRN.	SUR	22	0	0	28.0	-36.9	46.3
SYRT	ALL	DIRN.	SUR	20	0	0	25.7	-30.4	39.8
VRGW	ALL	DIRN.	SUR	27	0	0	80.7	-3.7	80.8
VRUM3	ALL	DIRN.	SUR	27	0	0	36.2	-37.1	51.8
44007	ALL	DIRN.	SUR	28	0	0	17.8	-35.4	39.6
45007	ALL	DIRN.	SUR	37	0	0	22.0	-34.9	41.2
45132	ALL	DIRN.	SUR	52	0	0	54.0	-32.7	63.1
46013	ALL	DIRN.	SUR	51	0	0	21.1	39.2	44.5
46053	ALL	DIRN.	SUR	63	0	0	53.0	-60.4	80.3
46181	ALL	DIRN.	SUR	54	0	0	62.6	-31.7	70.2
51006	ALL	DIRN.	SUR	39	0	0	125.1	-21.0	126.8
51309	ALL	DIRN.	SUR	65	0	0	79.5	55.5	96.9
52002	ALL	DIRN.	SUR	29	0	0	94.3	-14.6	95.4
52309	ALL	DIRN.	SUR	23	0	0	77.2	-38.7	86.4

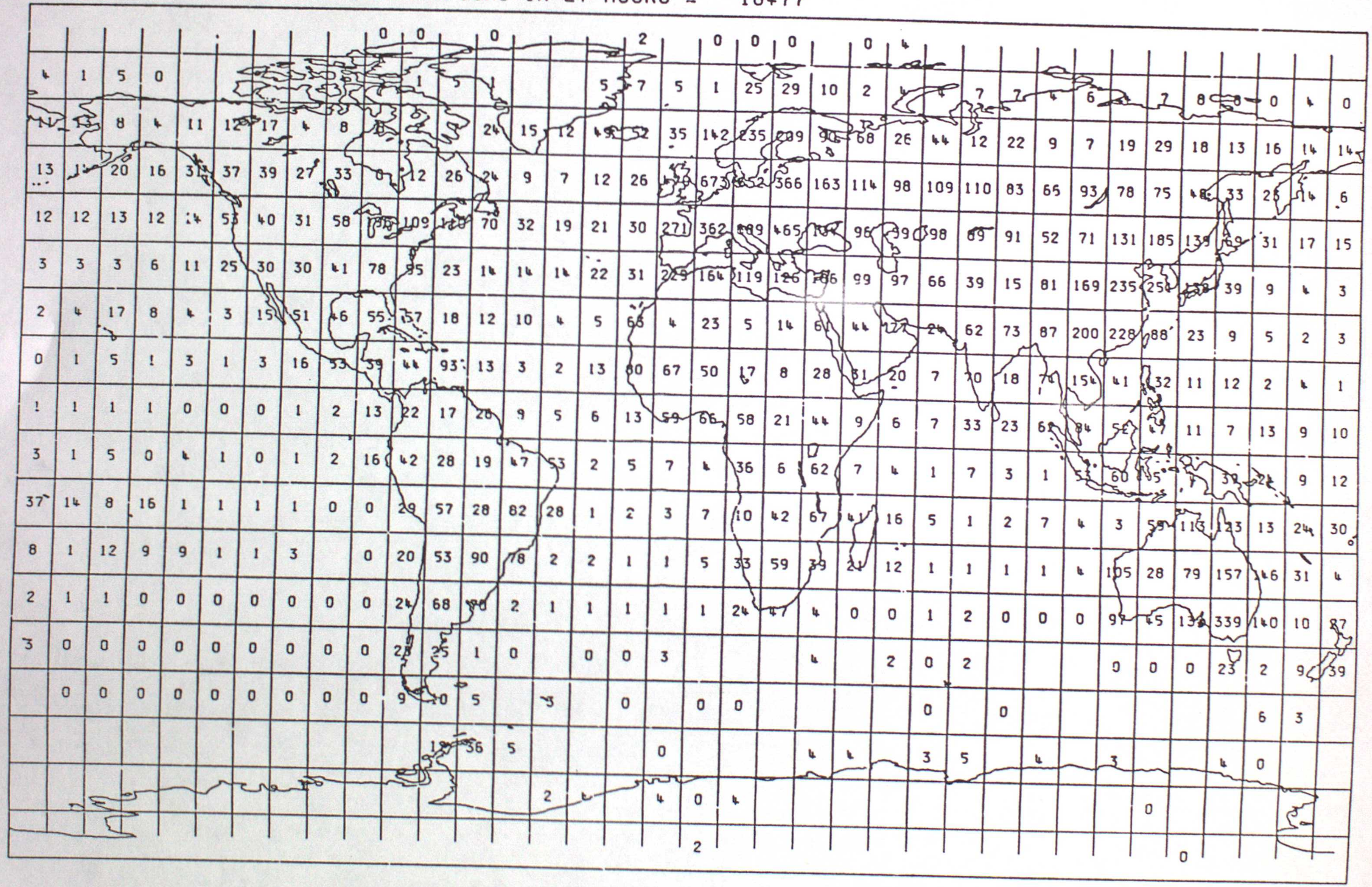
AVAILABILITY - SHIP/SYNOP - JULY 1994

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18477

FIGURE 1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13 1 20 16 31 37 39 27 33 0 12 26 24 9 7 12 26 170 673 352 366 163 114 98 109 110 83 65 93 78 75 48 33 25 14 6
12 12 13 12 14 53 40 31 58 130 109 180 70 32 19 21 30 271 362 889 465 104 96 39 98 89 91 52 71 131 185 139 69 31 17 15
3 3 3 6 11 25 30 30 41 78 95 23 14 14 14 22 31 229 164 119 126 166 99 97 66 39 15 81 169 235 254 138 39 9 4 3
2 4 17 8 4 3 15 51 46 55 57 18 12 10 4 5 65 4 23 5 14 61 44 127 24 62 73 87 200 228 88 23 9 5 2 3
0 1 5 1 3 1 3 16 53 39 44 93 13 3 2 13 80 67 50 17 8 28 31 20 7 70 18 74 154 41 32 11 12 2 4 1
1 1 1 1 0 0 0 1 2 13 22 17 28 9 5 6 13 59 66 58 21 44 9 6 7 33 23 65 84 52 47 11 7 13 9 10
3 1 5 0 4 1 0 1 2 16 42 28 19 47 53 2 5 7 4 36 6 62 7 4 1 7 3 1 53 60 95 7 39 22 9 12
37 14 8 16 1 1 1 1 0 0 29 57 28 82 28 1 2 3 7 10 42 67 41 16 5 1 2 7 4 3 59 113 123 13 24 30
8 1 12 9 9 1 1 3 0 20 53 90 78 2 2 1 1 5 33 59 39 21 12 1 1 1 1 4 105 28 79 157 146 31 4
2 1 1 0 0 0 0 0 0 0 24 68 90 2 1 1 1 1 1 24 47 4 0 0 1 2 0 0 0 97 45 136 339 140 10 87
3 0 0 0 0 0 0 0 0 0 23 25 1 0 0 0 3 4 2 0 2 0 0 0 23 2 9 39
0 0 0 0 0 0 0 0 0 9 10 5 3 0 0 0 0 0 6 3
18 36 5 0 4 4 3 5 4 3 4 0
2 4 0 4 0
2 0

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1. |bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

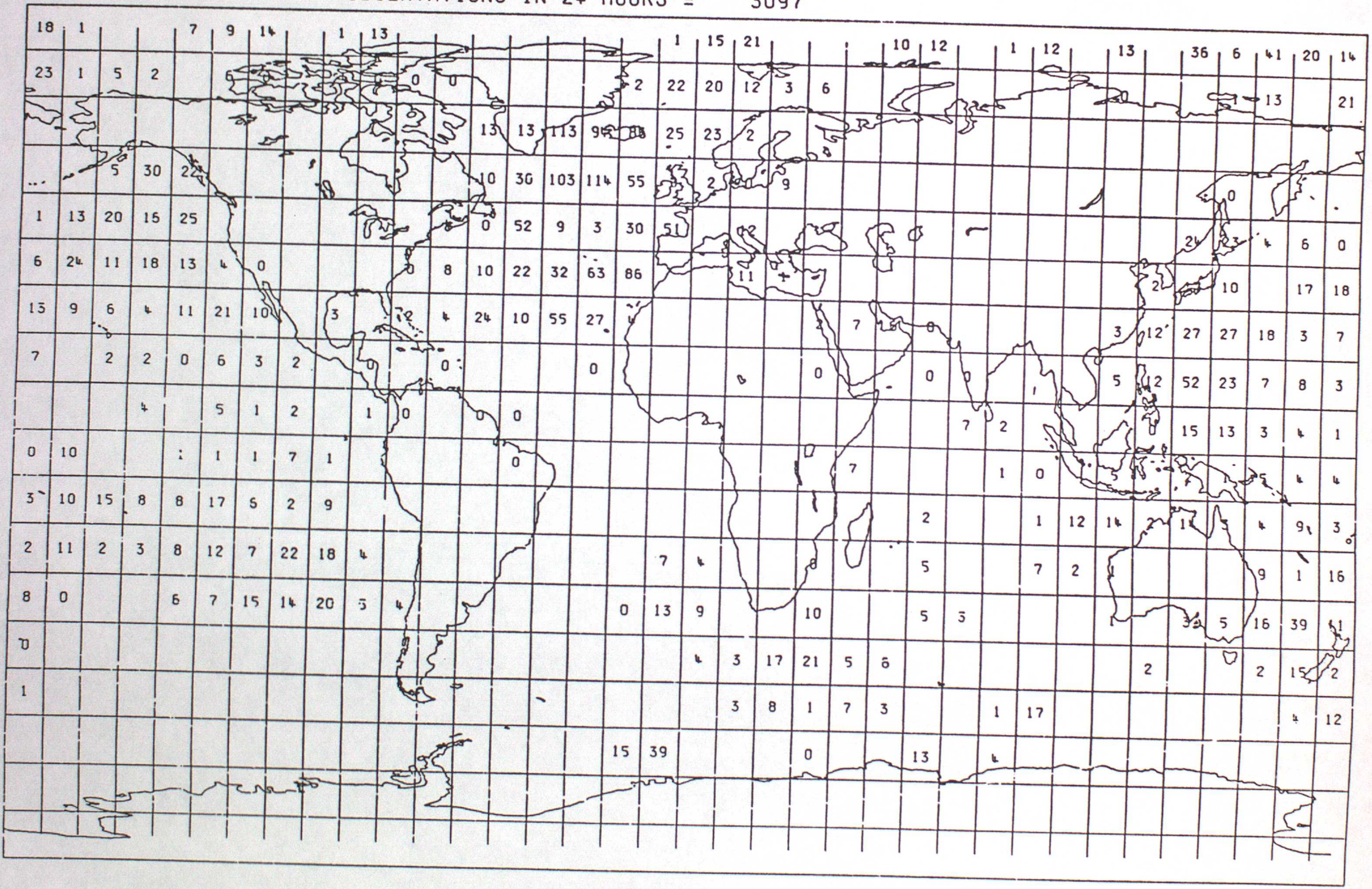
2. SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3. PGE $\geq$ 25.

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA-LEVEL PRESSURE											
65593	59.9	-39.8	ALL	MSLP	SUR	379	101	27	3.0	2.0	3.6
71541	-69.4	-13.8	ALL	MSLP	SUR	447	124	28	1.3	-0.4	1.4
WIND DIRECTION											
55580	-22.4	157.8	ALL	DIRN.	SUR	155	0	0	59.5	84.6	103.4
64544	62.1	-30.0	ALL	DIRN.	SUR	149	0	0	115.1	-91.8	147.2

AVAILABILITY - DRIBU - JULY 1994
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 3097

FIGURE 2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13 13 113 96 88 25 23 2
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6 24 11 18 13 4 0 0 8 10 22 32 63 86 24 4 6 0
13 9 6 4 11 21 10 3 2 4 24 10 55 27 4 11 2 10 17 18
7 2 2 0 6 3 2 0 0 7 0 3 12 27 27 18 3 7
4 5 1 2 1 0 0 0 0 0 0 1 5 12 52 23 7 8 3
0 10 1 1 7 1 0 7 2 15 13 3 4 1
3 10 15 8 8 17 5 2 9 7 1 0 4 4
2 1 12 14 2 1 4 9 3
2 11 2 3 8 12 7 22 18 4 7 4 5 7 2 9 1 16
8 0 6 7 15 14 20 5 4 0 13 9 10 5 5 3 5 16 39 41
0
4 3 17 21 5 6 2 2 15 2
1 3 8 1 7 3 1 17 4 12
15 39 0 13 4

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flaggled.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)

SELECTION CRITERIA :NOBS ≥ 20 ,and one or more of the following:

1. |bias| ≥ 4 hPa
2. SD ≥ 6 hPa
3. PGE ≥ 25.

Note:- **For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.**
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	111	0	0	99	1.0	4.4	4.5
60468	35.6N	6.2E	1052	S8	113	113	100	14	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	114	111	97	100	0.3	14.3	14.3
60670	24.6N	9.5E	1054	S8	113	1	1	99	0.8	8.6	8.6
62762	13.6N	33.6E	418	MS	42	0	0	24	1.7	4.4	4.7
63333	11.1N	39.7E	1916	MS	50	0	0	100	1.0	8.7	8.8
63402	7.7N	36.8E	1577	MS	83	59	71	96	1.6	-13.5	13.6
63453	8.8N	39.8E	1062	S	61	6	10	100	1.4	12.3	12.4
63474	7.1N	40.0E	2450	S	44	44	100	0	0.0	0.0	0.0
63478	5.1N	44.6E	320	MS	30	0	0	53	3.4	6.4	7.2
63801	4.9S	29.6E	885	S8	28	1	4	93	0.8	8.1	8.1
64503	3.4S	10.7E	34	M	60	0	0	97	1.9	-9.6	9.8
64507	2.9S	11.0E	79	M	67	0	0	99	1.5	-6.5	6.7
64911	5.0N	9.9E	821	8	87	0	0	43	1.3	-4.8	5.0
68014	19.6S	18.1E	1411	S8	71	1	1	85	1.1	-5.8	5.9
68396	26.5S	31.3E	641	S8	45	0	0	36	1.3	4.1	4.3
68752	32.8S	27.4E	524	S8	49	0	0	100	1.2	-8.4	8.5

WMO REGION 2:

25902	60.8N	151.8E	797	MS	25	0	0	100	0.9	-12.9	12.9
29999	52.5N	99.8E	1570	S8	87	86	99	84	0.0	-8.1	8.1
30554	54.5N	113.6E	995	MS	57	0	0	100	1.3	11.5	11.6
38609	40.1N	70.6E	832	MS	51	2	4	69	1.0	-4.2	4.3
38696	39.6N	66.9E	675	MS	59	2	3	56	1.6	-4.6	4.9
40356	31.7N	38.7E	818	S8	114	0	0	55	0.9	-4.9	5.0
40376	27.6N	38.6E	860	MS	47	47	100	0	0.0	0.0	0.0
40432	25.8N	42.0E	783	MS	46	46	100	0	0.0	0.0	0.0
40450	23.7N	44.6E	1080	MS	32	32	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	105	0	0	80	1.3	6.2	6.3
40723	37.5N	57.3E	1074	MS	57	0	0	23	2.2	-4.4	4.9
40726	36.8N	45.7E	1385	M	54	0	0	83	1.9	4.9	5.3
40731	36.3N	50.0E	1278	MS	80	7	9	45	1.6	-4.2	4.5
40740	36.8N	54.3E	1287	MS	100	0	0	36	1.3	-4.1	4.3
40743	36.2N	57.7E	941	MS	107	1	1	33	1.7	-6.1	6.3
40754	35.7N	51.4E	1191	MS	111	1	1	23	2.0	-4.0	4.5
40762	35.3N	59.2E	1333	MS	106	38	36	98	1.0	-13.9	13.9
40763	35.2N	58.5E	1060	MS	48	2	4	54	1.2	-7.7	7.8
40783	32.4N	49.7E	1972	MS	47	2	4	81	1.1	-7.0	7.1
40789	33.8N	55.1E	921	MS	88	1	1	89	2.3	5.4	5.9
40818	31.2N	52.7E	2004	MS	100	0	0	13	1.2	-4.9	5.0
40836	30.8N	51.7E	1880	MS	87	3	3	62	1.2	6.1	6.2
40859	29.0N	53.7E	1383	MS	87	1	1	99	1.6	7.8	8.0
41035	21.3N	40.3E	2089	S7	23	23	100	0	0.0	0.0	0.0
41254	23.1N	57.7E	1755	S8	58	58	100	100	0.0	0.0	0.0
44207	50.4N	100.2E	1687	MS	90	0	0	23	1.5	4.2	4.5
44241	48.9N	106.1E	807	S	84	33	39	96	2.4	12.2	12.4
44292	47.9N	107.0E	1338	MS	92	1	1	0	1.3	5.6	5.7
44298	46.4N	108.2E	1285	MS	59	1	2	14	1.3	4.5	4.7
44416	28.6N	81.6E	720	MS	57	0	0	0	1.4	6.5	6.6
44477	27.0N	87.4E	1445	S8	51	50	98	96	0.0	-1.4	1.4
51467	42.7N	86.3E	1753	S	119	0	0	0	2.2	7.2	7.5
52602	38.8N	93.4E	2734	S	120	0	0	0	1.8	-4.9	5.2
52866	36.7N	101.8E	2296	S	120	0	0	33	1.3	6.5	6.6
56287	30.0N	103.0E	629	M	120	0	0	5	1.3	4.2	4.4
56444	28.5N	98.9E	3488	S	120	120	100	99	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	115	0	0	0	1.8	8.0	8.2
57622	28.9N	107.2E	1907	S	112	0	0	0	1.0	-8.7	8.8
57816	26.5N	106.7E	1222	MS	119	119	100	100	0.0	0.0	0.0

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80315	3.0N	75.3W	443	MS	22	1	5	9	1.6	-4.2	4.5
83295	13.4S	39.9W	755	MS	26	1	4	69	0.6	-4.1	4.1
83332	14.1S	46.4W	950	MS	77	32	42	99	2.2	13.4	13.6
83376	15.9S	49.0W	730	MS	84	0	0	19	1.4	-4.1	4.3
83423	16.7S	49.3W	729	MS	81	0	0	46	0.9	-5.3	5.4
83488	17.8S	42.9W	1097	MS	46	46	100	91	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	59	1	2	58	3.2	-5.7	6.5
83531	18.6S	46.5W	896	S	46	1	2	91	1.7	-7.3	7.5
83587	19.8S	43.9W	850	MS	62	3	5	0	1.2	-7.9	8.0
83689	21.3S	43.8W	1171	MS	35	3	9	86	1.1	5.1	5.2
83704	22.3S	53.9W	369	MS	65	13	20	97	2.2	-9.9	10.1
83953	30.9S	55.5W	231	M	40	1	3	75	4.5	7.5	8.7
84203	2.1S	79.9W	9	M	51	0	0	0	1.1	4.0	4.1
84401	5.2S	80.6W	50	MS	90	0	0	0	1.4	5.4	5.6
84425	5.9S	76.1W	184	MS	46	0	0	0	3.0	4.8	5.7
84452	6.8S	79.8W	30	MS	112	0	0	0	1.3	4.0	4.2
84455	6.5S	76.4W	282	MS	52	0	0	2	2.0	5.3	5.7
84472	7.1S	78.5W	2622	S	41	0	0	88	3.1	-6.7	7.4
84501	8.1S	79.0W	30	MS	88	2	2	1	1.4	4.4	4.6
84531	9.2S	78.5W	21	MS	46	0	0	0	1.3	6.1	6.2
84628	12.0S	77.1W	13	MS	118	0	0	1	1.7	4.2	4.5
84658	12.6S	69.2W	266	MS	58	0	0	0	2.3	7.0	7.4
84686	13.6S	72.0W	3249	S	115	0	0	30	2.2	-6.6	7.0
84782	18.1S	70.3W	469	MS	90	0	0	0	1.4	4.8	5.0
85201	16.5S	68.2W	4071	S	111	0	0	0	1.2	4.9	5.0
85230	17.6S	69.4W	4057	S	54	1	2	20	1.5	5.1	5.3
85406	18.3S	70.3W	58	M	117	0	0	0	1.3	5.3	5.5
87046	24.4S	65.1W	905	S8	112	112	100	0	0.0	0.0	0.0
87322	31.3S	66.6W	658	MS	84	84	100	0	0.0	0.0	0.0
WMO REGION 4:											
76373	25.3N	105.8W	1967	MS	60	56	93	100	1.2	13.8	13.9
76539	22.1N	101.0W	1871	MS	95	0	0	76	0.9	-4.1	4.2
76632	20.1N	98.7W	2417	MS	65	0	0	92	0.8	-6.5	6.5
76692	19.1N	96.1W	13	MS	83	0	0	1	1.3	4.6	4.8
76726	18.9N	99.3W	1560	MS	60	1	2	100	1.1	-7.9	8.0
76762	17.5N	99.5W	1360	MS	60	2	3	97	1.0	11.1	11.1
76848	16.3N	92.1W	1530	MS	102	3	3	98	0.9	-12.8	12.8
78397	18.1N	76.9W	786	MS	36	36	100	0	0.0	0.0	0.0
WMO REGION 5:											
94001	6.1S	141.3E	-9999	M	87	1	1	2	1.2	4.6	4.8
94258	17.2S	137.9E	61	MS	147	0	0	95	1.5	-6.6	6.8
WMO REGION 6:											
01245	62.6N	9.7E	630	MS	88	0	0	95	0.9	-5.7	5.8
04266	60.8N	48.4W	33	MS	98	83	85	1	2.3	-0.7	2.4
08221	40.5N	3.6W	633	MS	114	0	0	89	1.2	5.2	5.3
11241	47.2N	15.5E	1438	S8	61	29	48	52	2.8	-0.2	2.8
11346	47.3N	12.8E	917	S	69	0	0	86	1.3	-4.1	4.3
16020	46.5N	11.3E	1461	S	85	85	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	113	0	0	98	1.1	-7.6	7.7
17084	40.6N	35.0E	837	MS	107	0	0	94	1.3	7.2	7.3
17190	38.8N	30.5E	1034	S8	107	0	0	76	1.0	4.0	4.1
17260	37.1N	37.4E	855	MS	106	94	89	100	6.7	12.4	14.1
37395	42.3N	42.6E	116	M	56	0	0	5	2.6	4.2	4.9
37484	41.6N	41.6E	6	MS	33	0	0	0	1.1	4.3	4.4
40184	31.8N	35.2E	809	S8	119	0	0	97	1.2	6.1	6.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89667	78.0S	166.5E	20	MS	100	0	0	19	2.9	5.6	6.3
89757	73.8S	55.7E	2775	S7	51	51	100	90	0.0	0.0	0.0
89803	68.5S	102.2E	2118	S7	56	1	2	29	2.4	-8.7	9.0
89805	74.1S	109.8E	3070	S7	54	18	33	22	4.0	1.0	4.1
89811	66.7S	112.9E	1362	S8	60	16	27	70	3.3	-9.3	9.9
89828	74.5S	123.0E	3280	S	102	11	11	46	4.3	7.6	8.7
89860	74.2S	160.3E	1772	S8	98	0	0	1	2.9	-5.2	6.0
89861	74.5S	160.5E	1525	S8	101	1	1	8	2.7	-7.5	8.0
89868	79.9S	169.8E	60	MS	86	86	100	99	0.0	0.0	0.0

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:70.0 - 500.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	77	3	5	2.8	-0.7	76	0	5	0	10.9	0.7
AAL	3078	1	1	1.8	-0.1	3080	0	2	0	7.1	1.6
AAN	104	2	5	1.9	-0.7	99	0	3	0	7.6	1.6
AAR	1094	1	2	1.7	-0.3	1078	0	3	0	8.3	1.3
ACA	966	0	2	2.3	-0.3	990	0	2	1	6.3	0.6
ACI	39	3	3	1.1	0.4	38	0	0	0	6.0	0.3
ADV	49	2	0	2.5	0.6	49	0	2	2	6.5	1.6
AEA	199	0	3	1.5	-0.1	196	0	4	1	8.3	0.9
AEL	211	0	4	1.5	-0.4	216	0	5	0	7.6	1.3
AFL	100	3	100	3.3	1.6	107	0	100	2	11.2	0.9
AFR	846	1	3	2.0	-0.1	862	0	4	1	7.3	1.6
AIC	27	4	4	2.3	-0.6	29	0	10	0	14.9	2.0
AJJ	31	3	6	2.8	-1.1	31	0	10	0	15.6	0.1
AME	41	0	0	1.5	-0.5	41	0	0	0	8.6	1.0
AMT	323	0	3	1.7	0.4	326	0	2	1	6.7	0.0
AMX	312	0	11	3.1	1.0	317	0	2	0	7.8	1.0
ANA	605	1	1	1.6	-0.2	602	0	2	1	7.5	1.2
ANZ	2176	1	2	1.9	0.2	2163	0	3	1	8.0	1.7
AOM	485	0	3	1.5	0.4	482	0	4	1	7.4	1.4
ARP	168	1	4	1.6	0.4	162	0	3	1	7.2	1.7
ATN	162	2	4	2.6	-2.0	164	0	5	0	11.9	2.8
AUA	61	2	5	2.5	-1.3	61	0	8	0	8.9	1.9
AVA	258	2	3	1.7	0.0	259	0	2	1	6.9	1.5
AVN	24	0	4	2.0	1.0	24	0	0	0	6.9	0.9
AVY	44	0	5	2.0	-1.2	45	0	4	0	7.1	0.8
AZA	342	0	3	2.1	0.2	347	0	3	1	7.6	1.8
BAL	260	4	15	1.6	-0.3	260	0	12	0	7.2	2.3
BAW	1289	1	5	2.2	-0.3	1317	0	5	1	8.0	1.7
BBB	44	0	14	1.9	-0.6	45	0	16	0	7.5	2.8
BWA	262	1	3	1.9	0.4	266	0	2	1	7.2	1.8
CAL	1336	1	2	1.7	-0.5	1332	0	2	1	8.2	1.5
CCA	198	1	94	2.1	0.0	198	0	7	2	8.9	1.4
CDN	1651	0	3	2.2	0.1	1654	0	4	1	7.3	1.5
CES	149	0	1	1.8	0.0	149	0	1	0	8.3	0.9
CFG	523	0	100	1.8	-1.1	523	0	3	1	7.3	1.7
CKS	106	3	99	2.7	-1.3	105	0	99	1	10.4	2.3
CKT	71	0	0	1.5	0.0	72	0	3	3	8.2	2.1
CLI	213	0	1	2.1	0.1	218	0	0	0	6.9	1.3
CLX	79	0	4	2.7	-1.3	84	0	6	2	7.2	0.4
CMI	966	2	3	2.0	0.4	968	0	5	3	8.3	2.0
CMM	174	0	3	1.9	-0.2	174	0	2	0	6.1	1.5
COA	677	0	1	1.4	0.2	685	0	2	1	6.2	0.6
CPA	77	1	4	2.1	-0.4	75	0	3	3	6.9	1.3
CRL	159	2	5	1.7	-0.1	158	0	6	2	6.0	1.6
CTM	77	0	97	2.8	-1.5	77	0	6	0	7.5	1.8
CUB	147	2	9	2.0	0.5	149	0	8	1	8.3	1.9
DAL	3991	0	2	1.9	0.2	3870	0	1	0	7.6	1.4
DHL	151	1	16	4.4	-1.7	154	1	100	0	10.7	0.8
DLH	1767	0	5	2.3	-0.4	1792	0	8	3	7.3	1.4
DOA	148	1	14	1.6	-0.7	151	0	16	2	8.1	0.9
EIA	65	5	25	2.4	-0.5	66	0	21	0	12.5	3.7
ELY	90	0	0	1.6	-0.5	95	0	2	1	9.3	1.8
EVA	1016	1	1	1.9	-0.8	1011	0	1	0	7.7	1.4
FDX	628	1	2	1.8	0.6	636	0	1	0	7.9	1.5
FIN	403	0	2	2.3	0.1	404	0	4	3	7.5	1.2
FJI	340	1	1	1.6	0.5	339	0	2	0	8.0	1.1
GAF	112	0	2	2.0	-0.4	113	0	2	0	8.1	1.8
GFA	21	0	0	2.0	-0.6	21	0	0	0	5.8	0.7
GIA	207	4	4	2.1	0.4	208	0	4	1	8.5	1.1

IDENT.	N.REP.	TEMPERATURE				WIND					
		PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
HAL	930	1	0	1.2	0.0	936	0	1	1	6.8	1.1
HLF	82	0	100	1.4	-0.4	83	0	0	0	8.4	1.5
IBE	1725	1	11	1.7	-0.1	1710	0	12	1	7.9	1.4
ICE	271	1	1	2.0	-0.3	268	0	2	0	7.0	1.4
JAA	52	6	6	1.8	1.0	52	0	4	4	7.1	1.6
JAL	4109	0	1	1.7	0.0	4102	0	3	1	8.3	1.8
JAZ	35	0	86	1.3	0.9	35	0	0	0	7.1	3.0
KAL	2502	1	2	2.0	-0.1	2484	0	3	1	8.3	1.3
KIW	29	0	0	3.7	2.2	29	0	0	0	6.9	2.0
KLM	1521	0	2	2.0	0.1	1524	0	3	1	7.3	1.6
LDA	183	0	100	2.2	-1.2	187	0	8	0	7.7	1.2
LDI	111	1	100	2.0	-1.2	114	0	4	0	8.2	1.6
LIB	128	0	4	1.6	0.0	128	0	7	2	8.6	1.0
LOT	497	1	3	2.4	-0.4	496	0	1	0	7.8	1.3
LTU	482	0	4	1.7	0.2	461	0	4	1	7.7	1.9
LWD	249	1	4	1.6	0.4	253	0	5	1	5.6	1.0
MAH	35	0	0	2.7	-1.6	38	0	3	0	6.6	1.1
MAS	258	1	3	1.8	-0.5	259	0	3	1	8.9	1.5
MDA	96	5	97	2.6	0.5	95	0	2	2	7.0	1.0
MOD	28	0	11	2.3	1.4	27	0	19	0	14.6	6.3
MPH	481	0	2	2.1	-0.4	478	0	1	0	7.1	1.1
NAL	85	0	100	2.3	0.6	85	0	0	0	7.3	1.5
NAT	20	0	5	3.3	0.7	20	0	0	0	7.8	2.6
NCA	558	0	1	1.9	0.0	554	0	3	1	7.9	1.4
NGA	103	0	2	1.4	0.4	103	1	9	0	11.9	-0.5
NWA	7427	0	2	2.0	0.3	7427	0	3	2	8.0	1.6
OAL	31	0	6	2.0	0.6	31	0	6	0	7.6	2.4
PAL	713	1	4	2.2	-0.3	720	0	6	1	11.5	2.4
PAO	155	1	5	1.9	0.4	152	0	3	0	7.5	0.5
QFA	1381	1	3	1.9	0.3	1372	0	2	1	7.5	1.0
QFX	28	0	0	1.4	0.6	28	0	0	0	5.6	1.1
RAF	124	7	9	1.8	0.2	121	0	5	1	9.6	3.6
RIA	39	15	23	4.0	2.6	39	0	18	0	14.6	4.5
RKA	29	0	0	1.1	0.5	29	0	0	0	6.0	1.9
RON	36	3	3	1.7	0.8	36	0	0	0	7.8	-0.4
ROY	30	0	0	2.8	0.6	33	0	3	0	10.0	1.8
RRR	132	1	14	2.2	0.2	134	1	21	2	11.4	0.2
SAA	161	1	2	1.9	-0.8	159	0	3	0	7.5	2.1
SAB	50	0	0	1.7	0.4	51	0	4	2	7.7	0.2
SAS	1428	0	1	2.2	-0.4	1422	0	3	1	7.2	0.7
SIA	964	0	1	1.9	-0.4	961	0	2	1	8.3	1.2
SJM	42	0	0	1.5	0.6	42	0	0	0	6.9	1.7
SOL	22	0	0	1.1	0.2	20	0	0	0	5.6	0.3
SPP	204	2	3	1.4	-0.2	194	0	3	1	7.1	1.7
SVA	96	0	4	1.7	0.0	108	0	4	0	8.1	1.6
SWR	168	1	2	1.8	0.0	172	0	3	0	8.6	1.5
TAP	542	1	2	1.9	0.0	534	0	1	0	7.9	1.6
THA	270	0	1	1.8	-0.5	268	0	3	1	7.9	1.7
TIH	129	0	2	2.5	0.1	133	0	2	1	6.4	0.9
TOW	91	0	3	1.8	-0.2	92	0	4	0	8.9	1.1
TSC	205	0	9	2.7	-0.5	211	0	7	0	9.8	2.4
TWA	1085	1	3	1.8	0.0	1075	0	3	1	8.1	1.6
UAL	88285	2	4	1.3	0.1	88253	0	2	0	6.7	0.8
ULE	143	0	1	1.2	-0.2	145	0	3	1	6.7	1.0
UPS	490	1	8	1.6	-0.4	496	0	8	0	8.4	1.3
USA	174	0	2	2.1	-0.5	176	0	3	0	7.3	2.0
VIA	464	0	2	1.5	0.2	464	0	4	3	6.5	1.4
VIR	148	0	5	2.3	-0.7	151	0	5	1	8.1	2.4
VRG	60	0	3	2.2	0.6	61	0	7	0	10.7	3.2

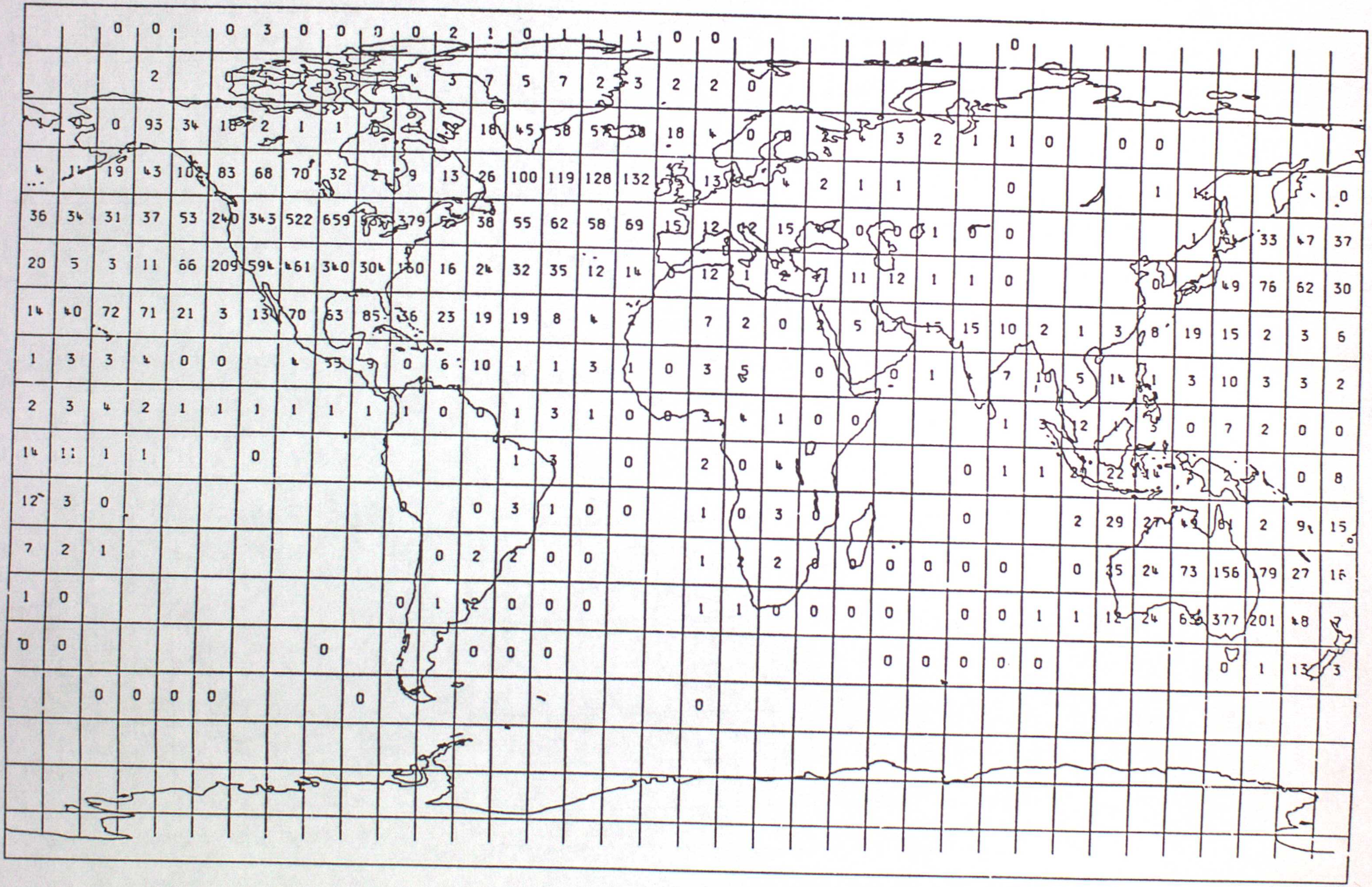
		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
VSP	73	0	0	1.5	-0.3	73	0	1	0	9.2	2.1
WOA	95	0	1	1.9	0.5	96	0	0	0	7.4	2.0
AN	25854	0	1	1.4	0.2	25595	0	1	0	7.2	1.2
BA	18100	0	7	1.7	0.6	18037	0	7	0	7.3	1.4
DL	698	0	99	2.2	0.9	697	2	99	0	27.1	0.8
FJ	23	0	0	1.0	0.1	23	0	9	0	9.8	0.3
KL	3311	0	49	1.7	0.9	3303	0	6	0	8.2	1.1
LH	60	0	0	1.6	0.6	55	0	0	0	5.1	1.5
NW	55232	0	4	1.5	0.2	55177	0	1	0	6.6	0.8
QF	11581	0	1	1.2	0.3	11545	0	1	0	6.9	1.3
M	178	2	6	2.7	0.7	180	0	5	0	11.1	2.5
N	251	2	4	2.4	0.4	261	0	2	0	8.4	1.1

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA

JULY 1994

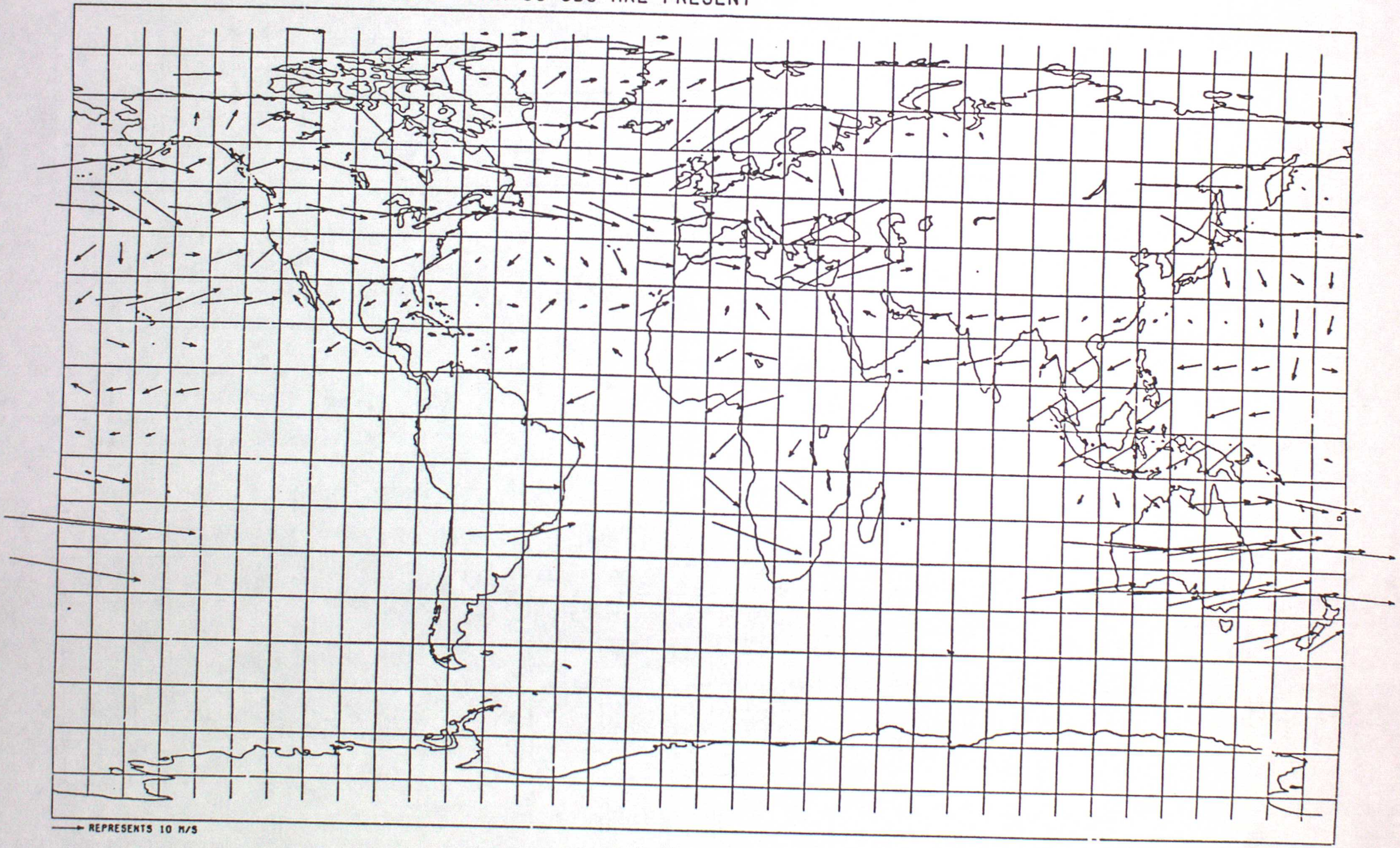
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3



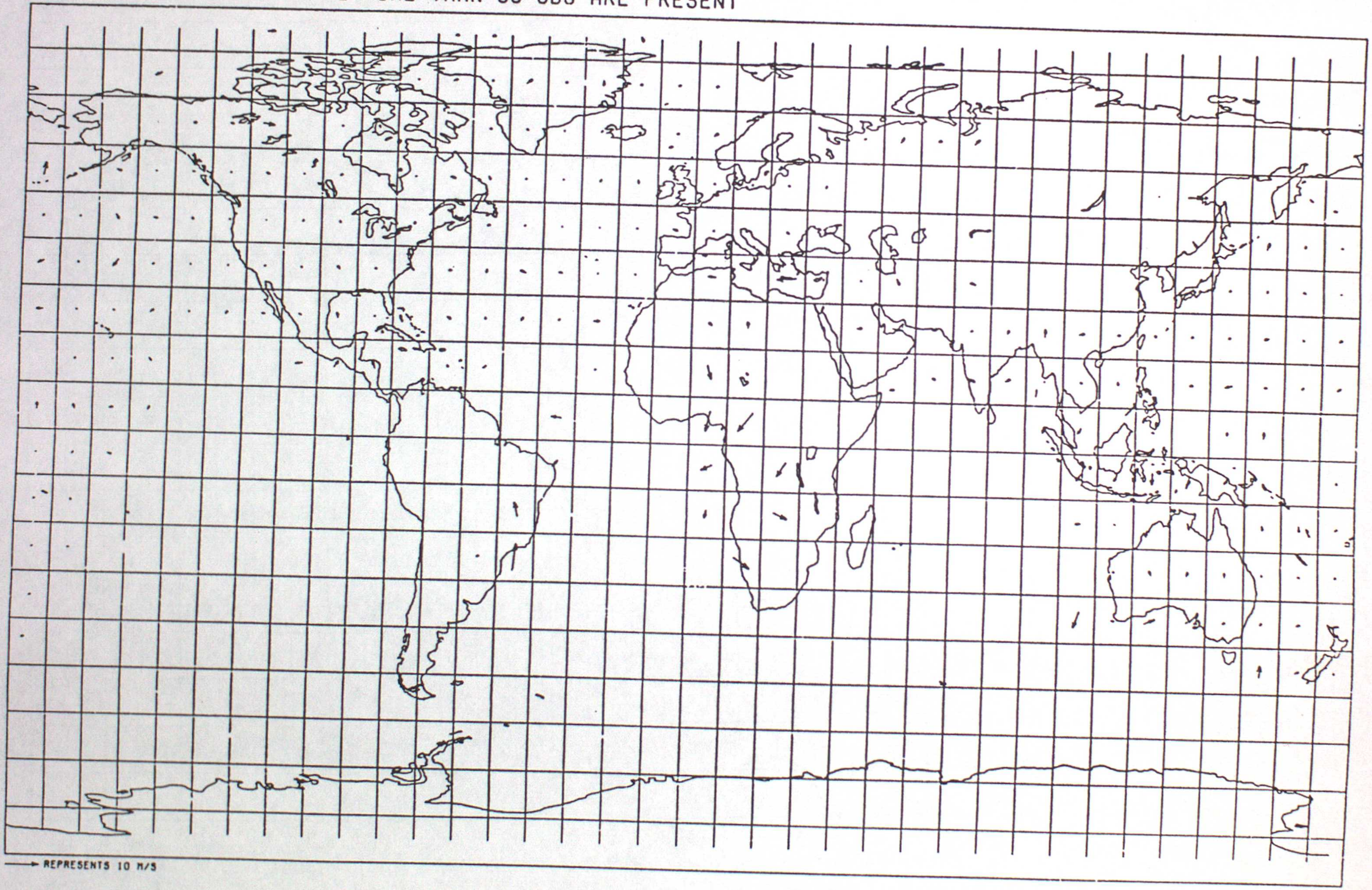
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA
JULY 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4



AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
JULY 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 5

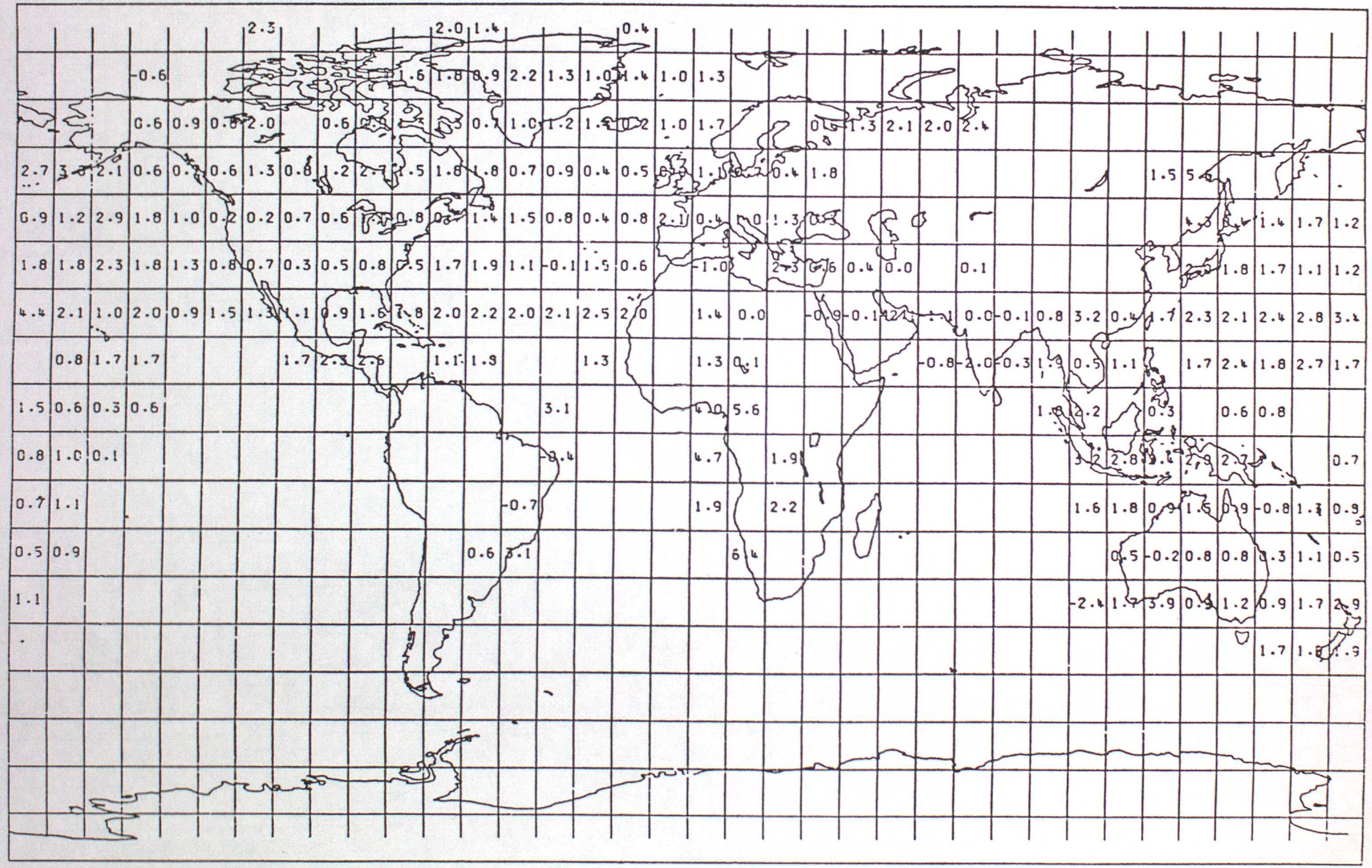


AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6

JULY 1994

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


2.3 2.0 1.4 0.4
-0.6 1.6 1.8 0.9 2.2 1.3 1.0 1.4 1.0 1.3
0.6 0.9 0.8 2.0 0.6 0.7 1.0 1.2 1.0 1.7 0.6 1.3 2.1 2.0 2.4
2.7 3.0 2.1 0.6 0.7 0.6 1.3 0.8 1.2 2.7 1.5 1.8 1.8 0.7 0.9 0.4 0.5 1.1 0.4 1.8 1.5 5.6
0.9 1.2 2.9 1.8 1.0 0.2 0.2 0.7 0.6 0.8 1.4 1.5 0.8 0.4 0.8 2.1 0.4 1.3 0.3 4.3 1.4 1.7 1.2
1.8 1.8 2.3 1.8 1.3 0.8 0.7 0.3 0.5 0.8 0.5 1.7 1.9 1.1 -0.1 1.5 0.6 -1.0 2.3 0.6 0.4 0.0 0.1 1.8 1.7 1.1 1.2
4.4 2.1 1.0 2.0 0.9 1.5 1.3 1.1 0.9 1.6 1.8 2.0 2.2 2.0 2.1 2.5 2.0 1.4 0.0 -0.9 -0.1 1.1 0.0 -0.1 0.8 3.2 0.4 1.7 2.3 2.1 2.4 2.8 3.4
0.8 1.7 1.7 1.7 2.3 2.6 1.1 1.9 1.3 1.3 0.1 -0.8 -2.0 -0.3 1.9 0.5 1.1 1.7 2.4 1.8 2.7 1.7
1.5 0.6 0.3 0.6 3.1 4.0 5.6 1.8 2.2 0.3 0.6 0.8
0.8 1.0 0.1 -3.4 4.7 1.9 3.2 2.8 3.6 2.9 2.7 0.7
0.7 1.1 -0.7 1.9 2.2 1.6 1.8 0.9 1.5 0.9 -0.8 1.3 0.9
0.5 0.9 0.6 3.1 6.4 0.5 -0.2 0.8 0.8 0.3 1.1 0.5
1.1 -2.4 1.7 3.9 0.9 1.2 0.9 1.7 2.9
1.7 1.8 1.9

AIRCRAFT : RMS O-B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
JULY 1994
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

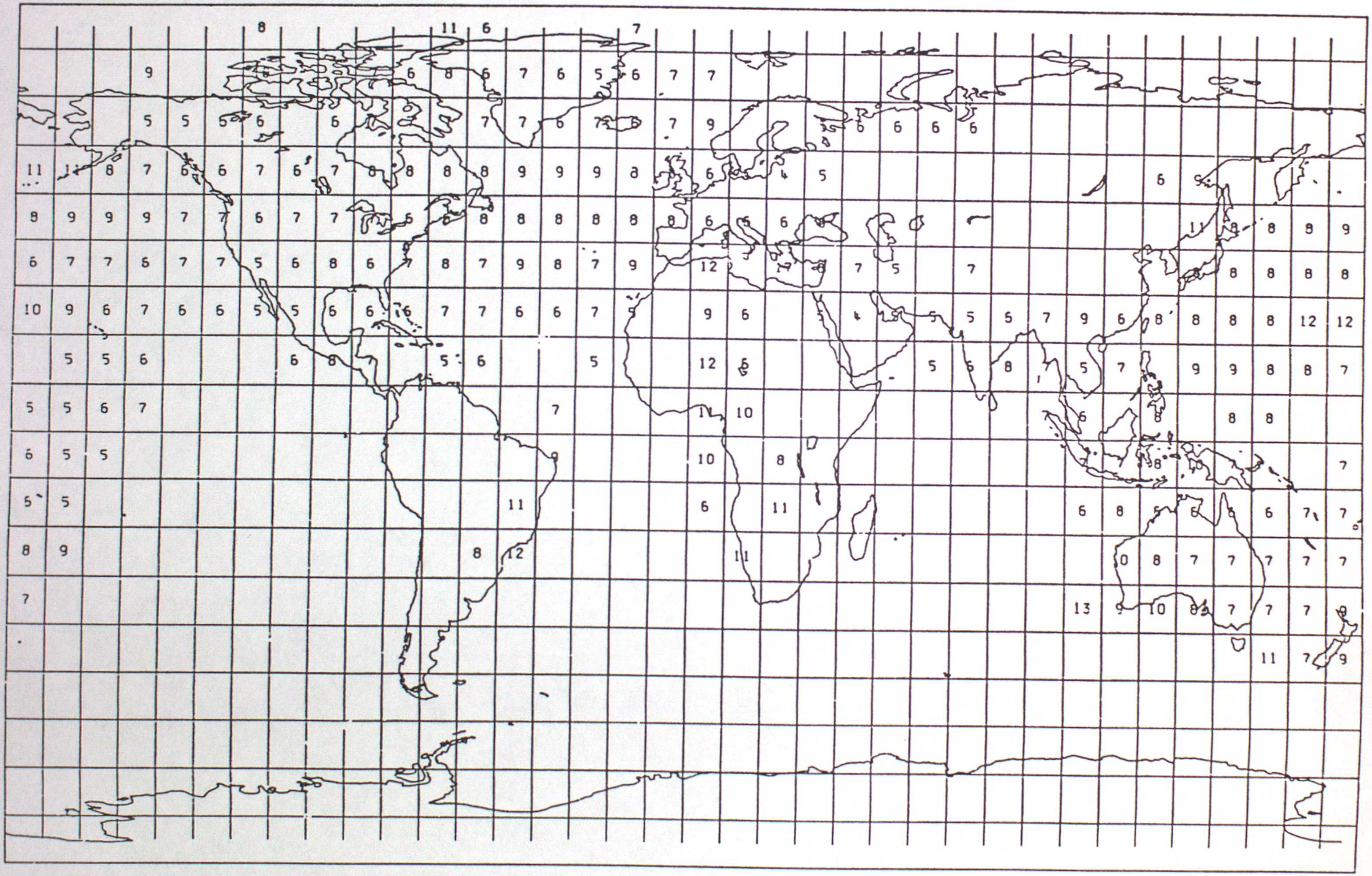


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	:$\geq$ 3 levels with $\geq$ 10 observations and $\geq$ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
22522	00	Z	100	65/ 35	27	0	107.8	-104.3	150.0	9
30554	00	Z	200	54/ 114	29	0	41.5	70.3	81.6	4
30554	12	Z	200	54/ 114	28	0	27.7	78.2	83.0	5
41977	00	Z	850	22/ 92	17	2	36.9	21.8	42.9	8
42027	00	Z	70	34/ 75	14	2	168.0	132.9	214.2	9
42027	12	Z	200	34/ 75	13	3	75.2	120.5	142.0	9
42182	12	Z	50	29/ 77	14	1	138.0	97.2	168.8	7
42314	12	Z	30	27/ 95	8	2	190.0	168.4	253.9	9
42339	00	Z	30	26/ 73	10	4	115.8	287.7	310.1	8
42339	12	Z	30	26/ 73	5	8	94.7	295.6	310.4	9
42361	00	Z	150	26/ 78	18	1	127.9	24.1	130.1	8
42361	12	Z	100	26/ 78	17	0	150.5	79.1	170.0	7
42369	00	Z	200	27/ 81	14	0	100.5	-34.4	106.2	6
42369	12	Z	200	27/ 81	14	0	118.0	-15.8	119.0	6
42379	00	Z	50	27/ 83	14	4	130.6	197.4	236.7	10
42379	12	Z	50	27/ 83	20	4	147.8	208.0	255.2	10
42397	00	Z	100	27/ 88	10	1	167.3	58.7	177.3	4
42410	00	Z	50	26/ 92	14	2	200.6	107.6	227.7	8
42410	12	Z	50	26/ 92	15	3	177.1	120.5	214.2	9
42492	00	Z	200	26/ 85	28	0	110.9	8.2	111.2	6
42492	12	Z	200	26/ 85	20	1	91.6	-11.8	92.4	5
42647	00	Z	150	23/ 73	13	0	113.5	47.8	123.1	5
42647	12	Z	150	23/ 73	18	1	105.0	91.7	139.4	5
42724	00	Z	50	24/ 91	12	1	179.1	179.5	253.5	7
42724	12	Z	200	24/ 91	12	0	106.4	-4.3	106.5	4
42809	00	Z	70	23/ 88	21	3	144.6	160.4	216.0	7
42809	12	Z	50	23/ 88	13	3	229.8	102.7	251.7	8
42867	00	Z	70	21/ 79	14	2	129.5	132.2	185.1	6
42867	12	Z	70	21/ 79	15	0	99.0	137.7	169.6	6
42875	12	Z	200	21/ 82	11	1	97.4	61.5	115.2	5
42971	00	Z	70	20/ 86	21	1	183.1	34.7	186.4	8
42971	12	Z	50	20/ 86	14	1	194.3	73.1	207.6	8
43003	00	Z	150	19/ 73	23	1	114.0	-30.2	117.9	4
43003	12	Z	150	19/ 73	18	3	132.8	47.9	141.2	8
43014	00	Z	100	20/ 75	11	0	139.1	8.5	139.4	5
43041	00	Z	150	19/ 82	12	0	144.4	44.3	151.0	4
43128	00	Z	70	17/ 78	16	0	134.9	76.1	154.8	5
43128	12	Z	30	17/ 78	8	2	160.1	154.6	222.6	8
43150	00	Z	100	18/ 83	15	0	130.1	-34.8	134.7	5
43150	12	Z	100	18/ 83	10	1	113.0	-59.1	127.5	4
43185	00	Z	70	16/ 81	8	3	195.8	93.3	216.9	9
43185	12	Z	30	16/ 81	7	3	133.3	270.6	301.6	9
43192	00	Z	100	15/ 74	18	1	139.7	-60.3	152.2	6
43192	12	Z	70	15/ 74	18	0	146.1	136.8	200.2	6
43279	00	Z	50	13/ 80	22	0	178.4	51.0	185.5	7
43279	12	Z	70	13/ 80	22	1	161.7	97.6	188.9	8
43285	00	Z	200	13/ 75	19	0	94.9	45.0	105.0	5
43285	12	Z	70	13/ 75	7	3	143.2	167.6	220.4	8
43295	00	Z	150	13/ 78	21	2	101.7	92.4	137.4	8
43295	12	Z	200	13/ 78	25	1	79.7	105.4	132.1	6
43346	00	Z	50	11/ 80	17	0	198.0	89.1	217.1	8
43346	12	Z	150	11/ 80	23	0	121.8	42.1	128.9	7
43353	12	Z	100	10/ 76	15	0	96.6	93.1	134.2	5
43369	00	Z	50	8/ 73	12	1	141.3	-83.4	164.1	8
43369	12	Z	100	8/ 73	22	0	140.0	15.2	140.8	5
43371	00	Z	100	8/ 77	24	3	119.8	-68.6	138.1	7
43371	12	Z	50	8/ 77	17	0	195.6	128.7	234.1	8
50527	00	Z	100	49/ 120	28	0	38.9	101.8	109.0	5
50527	12	Z	70	49/ 120	29	0	44.0	129.5	136.8	7
50774	00	Z	70	48/ 129	22	0	26.6	124.4	127.2	6

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
50774	12	Z	200	48/ 129	30	0	29.7	82.1	87.3	6
50953	00	Z	150	46/ 127	29	0	32.8	80.9	87.2	4
52267	12	Z	100	42/ 101	24	0	30.7	120.2	124.1	6
52323	12	Z	100	42/ 97	30	0	34.2	105.4	110.8	4
52836	12	Z	100	36/ 98	30	0	42.1	117.9	125.2	6
53463	12	Z	100	41/ 112	30	0	33.4	118.2	122.8	5
54102	12	Z	70	44/ 116	28	0	50.3	127.0	136.6	6
54135	00	Z	70	44/ 122	24	1	74.9	137.8	156.8	6
54161	00	Z	70	44/ 125	28	0	67.3	102.8	122.8	6
54218	00	Z	30	42/ 119	21	0	58.5	173.4	183.0	6
54337	12	Z	70	41/ 121	11	1	107.4	143.8	179.5	6
54342	00	Z	150	42/ 123	28	0	30.5	113.4	117.4	8
54342	12	Z	70	42/ 123	26	0	29.4	134.3	137.5	6
54374	00	Z	30	42/ 127	25	0	57.7	176.4	185.6	5
54497	00	Z	100	40/ 124	26	0	37.0	97.0	103.8	4
54511	12	Z	70	40/ 116	23	1	34.3	125.5	130.1	4
54662	00	Z	100	39/ 122	14	0	41.5	123.4	130.2	4
54662	12	Z	100	39/ 122	13	0	43.4	109.7	118.0	4
56029	12	Z	100	33/ 97	27	0	62.8	94.9	113.8	5
56146	12	Z	30	32/ 100	19	0	77.1	204.5	218.5	5
56294	12	Z	70	31/ 104	27	0	43.8	136.3	143.1	5
56691	12	Z	30	27/ 104	16	0	40.2	193.7	197.8	5
56739	12	Z	100	25/ 98	26	0	24.0	129.3	131.5	5
56778	12	Z	100	25/ 103	29	0	39.4	116.6	123.1	5
56985	00	Z	100	23/ 103	30	0	35.4	119.2	124.3	5
56985	12	Z	70	23/ 103	29	0	30.9	154.5	157.6	5
57127	12	Z	100	33/ 107	30	0	44.4	117.5	125.6	4
57679	00	Z	70	28/ 113	27	0	90.8	155.4	180.0	6
57679	12	Z	70	28/ 113	17	0	53.6	171.8	180.0	6
57816	12	Z	70	26/ 107	23	0	53.3	134.1	144.3	5
57957	00	Z	70	25/ 110	27	1	47.0	162.0	168.7	6
57957	12	Z	100	25/ 110	28	0	41.8	148.6	154.3	6
58027	12	Z	100	34/ 117	26	0	51.1	120.4	130.8	6
58150	12	Z	70	34/ 120	29	0	42.8	128.3	135.3	4
58203	00	Z	100	33/ 116	25	1	51.5	115.0	126.0	6
58238	00	Z	100	32/ 119	29	0	37.9	114.7	120.8	4
58424	00	Z	70	31/ 117	30	0	35.9	151.3	155.5	7
58424	12	Z	100	31/ 117	28	0	77.3	134.0	154.7	6
58665	00	Z	30	29/ 121	20	0	67.5	187.3	199.1	5
58847	00	Z	70	26/ 119	27	0	39.0	151.5	156.4	6
58847	12	Z	70	26/ 119	23	0	42.1	153.4	159.1	6
59287	00	Z	100	23/ 113	30	0	37.7	115.4	121.4	4
59981	12	Z	70	17/ 112	16	0	37.8	124.9	130.5	4
62378	12	Z	70	30/ 31	3	9	40.3	327.7	330.1	7
70219	00	Z	30	61/-162	28	0	50.6	247.7	252.9	4
70414	00	Z	150	53/ 174	18	0	63.4	117.9	133.8	5
82332	12	Z	70	-3/ -60	9	1	49.5	175.6	182.4	5
83746	12	Z	50	-23/ -43	26	0	52.0	133.1	142.9	5
89009	00	Z	500	-90/ 0	16	0	46.8	67.8	82.4	5
91557	12	Z	700	-18/ 168	20	0	11.9	-68.8	69.9	6
96237	00	Z	100	-2/ 106	18	1	139.8	47.7	147.8	6
97014	00	Z	200	2/ 125	26	0	49.0	-87.1	99.9	7
97372	00	Z	850	-10/ 124	22	0	9.3	-42.2	43.2	4

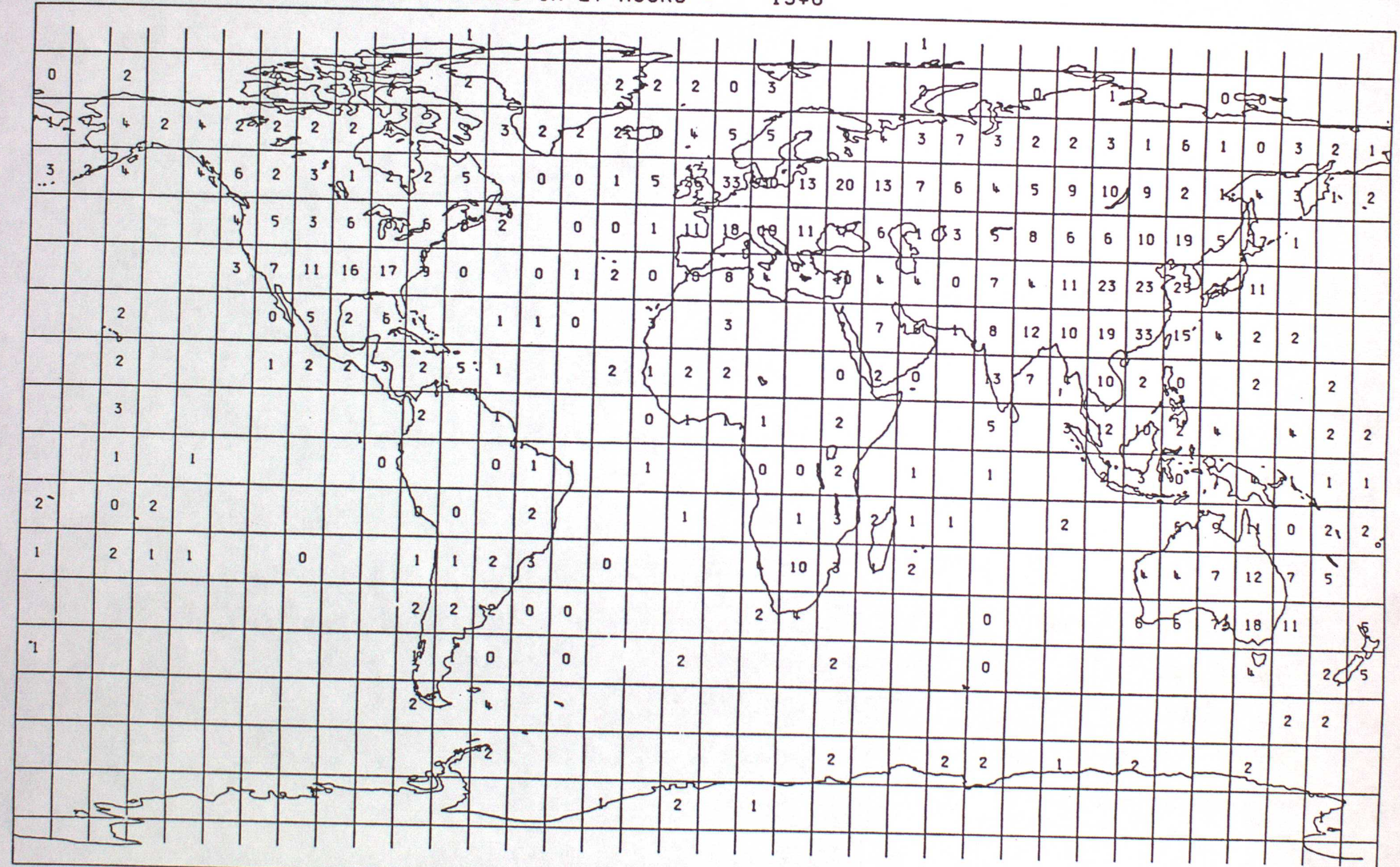
AVAILABILITY - TEMP - 500 HPA GEOPOTENTIAL - JULY 1994

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1340


1 1
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4 2 4 2 2 2 2 4 3 2 2 2 4 5 5 4 3 7 3 2 2 3 1 6 1 0 3 2 1
3 3 4 4 6 2 3 1 2 2 5 0 0 1 5 26 33 30 13 20 13 7 6 4 5 9 10 9 2 1 4 3 1 2
4 5 3 6 6 6 2 0 0 1 11 18 19 11 6 1 3 5 8 6 6 10 19 5 7 1
3 7 11 16 17 9 0 0 1 2 0 18 8 4 20 4 4 0 7 4 11 23 23 25 11
2 0 5 2 6 1 1 1 0 3 3 7 1 8 12 10 19 33 15 4 2 2
2 1 2 2 3 2 5 1 2 1 2 2 0 2 0 13 7 10 2 0 2 2
3 2 1 0 1 1 2 5 3 12 10 2 4 4 2 2
1 1 0 0 1 1 0 0 2 1 1 2 3 0 1 1
2 0 2 0 0 2 1 1 3 2 1 1 2 5 9 1 0 2 2
1 2 1 1 0 1 1 2 3 0 4 10 3 1 2 4 4 7 12 7 5
2 2 2 0 0 2 4 0 6 6 7 3 18 11 5
1 1 0 0 2 2 0 4 2 5
2 4 2 2
2 2 2 2 1 2 2
1 2 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

- :NUM OBS :Number of observations available at level shown during period.
- :NUM GROSS :Number of gross errors at level shown during period.
- :% REJ :Percentage of observations rejected by quality control at level shown during period.
- :UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
- :RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
- :NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA :≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
68994	00	V	150	-47/ 38	30	0	3	-13.5	0.5	15.7	1
83612	00	V	150	-20/ -55	16	0	18	2.1	4.3	16.6	1
83612	12	V	250	-20/ -55	20	0	10	7.6	2.9	16.7	2

AVAILABILITY - TEMP/PILOT - 300 HPA WIND - JULY 1994

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1188

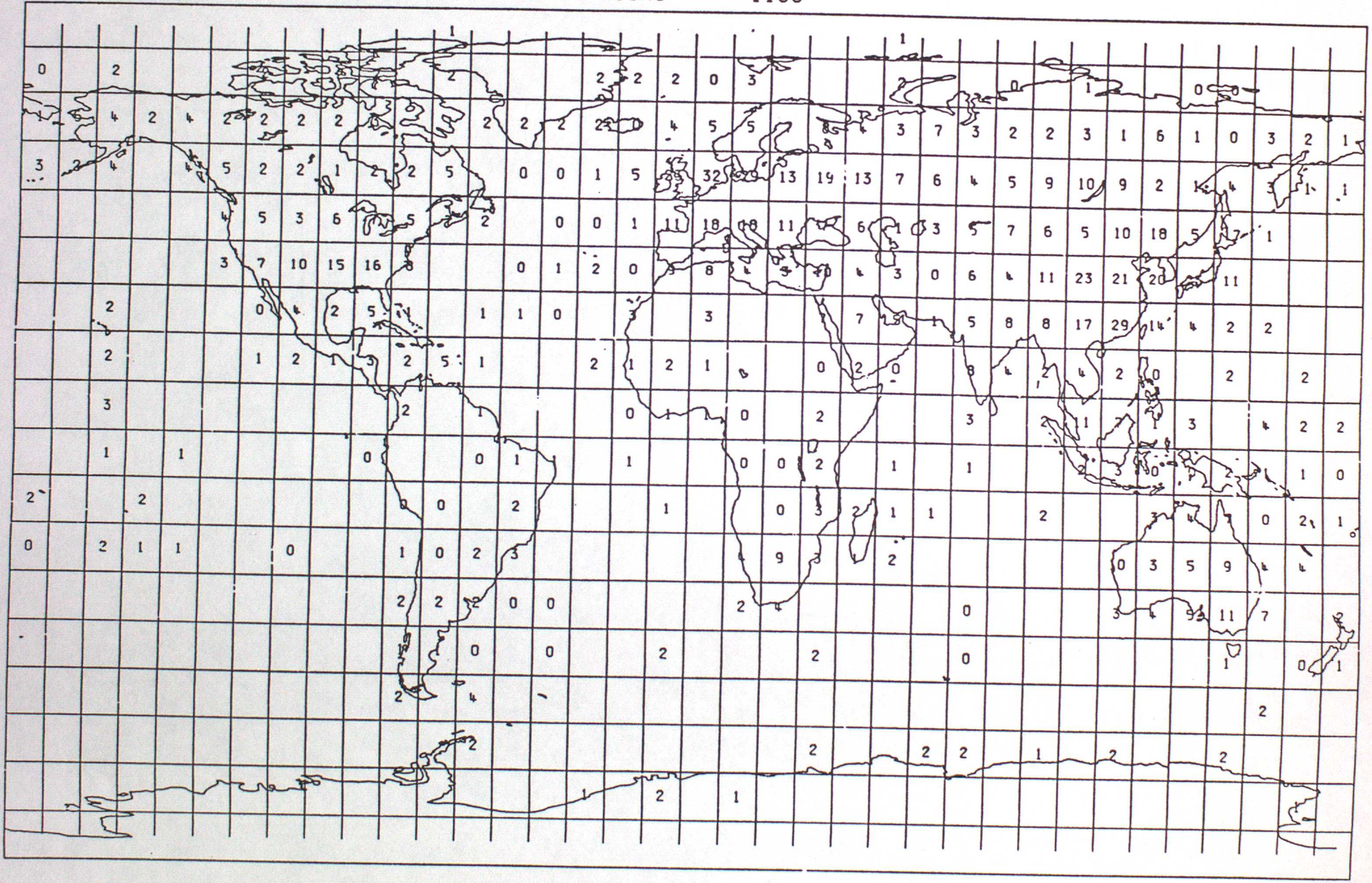


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS $\geq$ 5, and

ABSOLUTE BIAS $\geq$ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17240	00	DD	38/ 31	26	-10.1	5.1	9.7
17280	00	DD	38/ 40	26	-16.5	2.3	10.1
17280	12	DD	38/ 40	26	-14.7	1.9	11.6
25399	12	DD	66/-170	23	14.2	4.2	17.8
33837	00	DD	46/ 31	19	10.4	9.4	22.1
40265	00	DD	32/ 36	25	-28.9	6.8	19.4
42314	00	DD	27/ 95	6	10.6	8.6	17.8
42379	00	DD	27/ 83	18	11.2	4.9	23.6
47185	12	DD	33/ 126	16	-11.4	9.1	27.6
48455	12	DD	14/ 101	21	-13.5	9.8	22.0
50527	00	DD	49/ 120	26	11.0	8.5	16.9
57993	00	DD	26/ 115	15	-17.2	6.1	24.8
57993	12	DD	26/ 115	14	-16.3	5.3	24.8
60571	00	DD	32/ -2	17	14.3	7.7	25.6
72201	00	DD	25/ -82	13	13.2	5.1	25.8
78866	12	DD	18/ -63	11	24.9	4.1	19.4
83378	12	DD	-16/ -48	22	-16.2	9.1	25.9

MONITORING OF SATELLITE WINDS

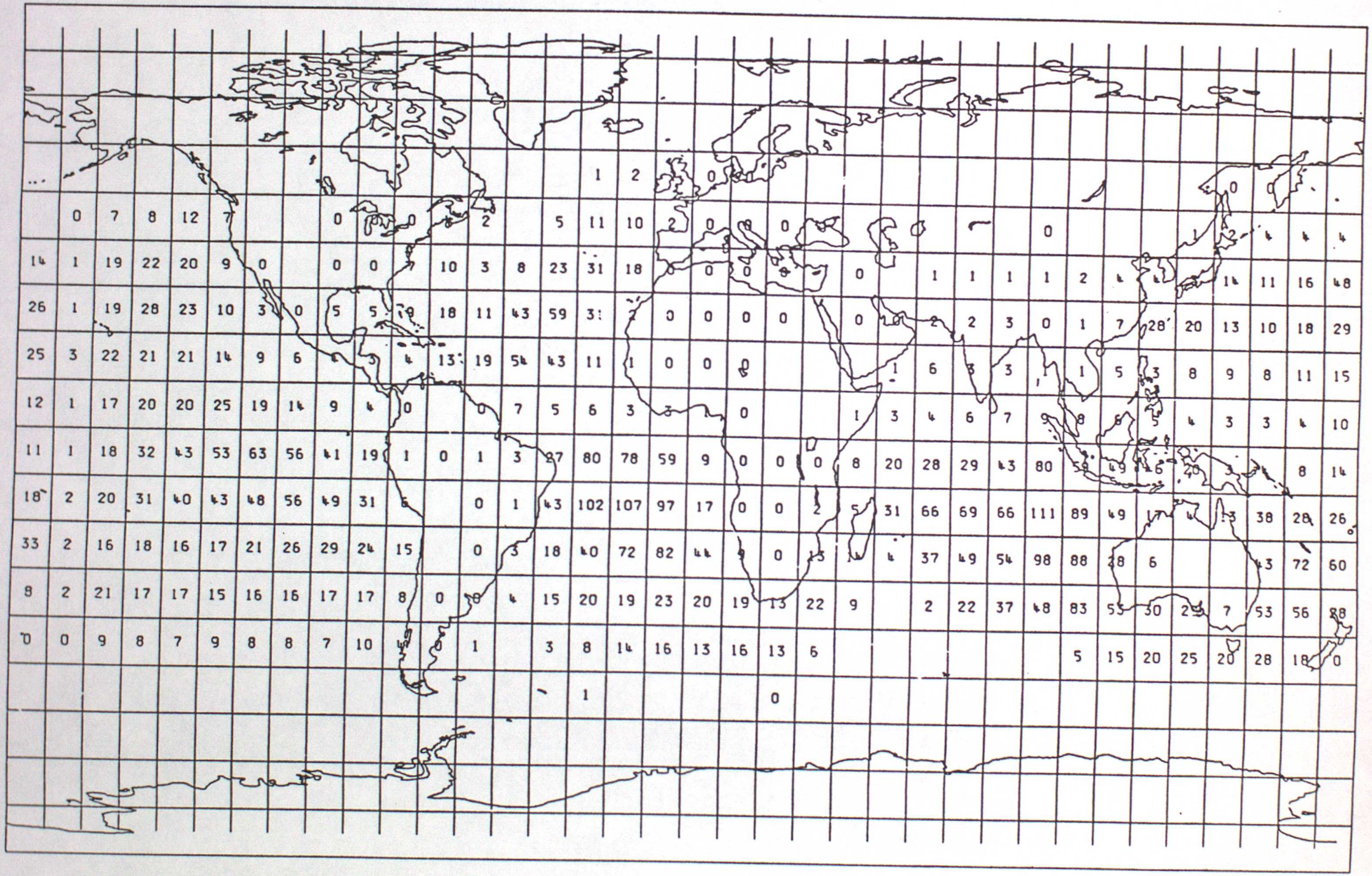
MONITORING CENTRE: BRACKNELL

MONTH:July, 94

Monitoring procedures

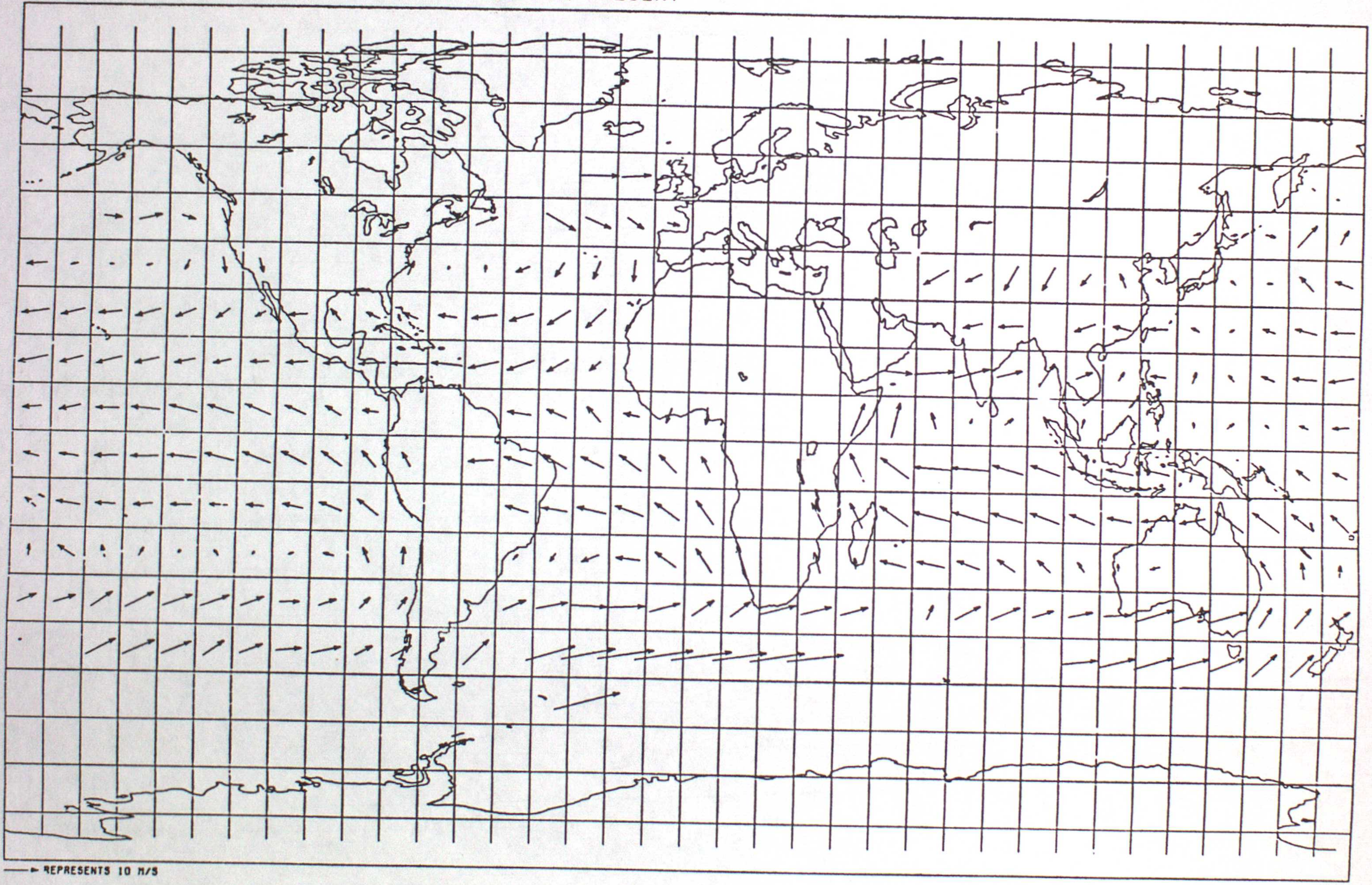
Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer:701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JULY 1994


1 2 0 0 0
0 7 8 12 7 0 0 8 2 5 11 10 2 0 8 0 0 1 2 4 4 4
14 1 19 22 20 9 0 0 0 7 10 3 8 23 31 18 0 0 0 8 0 1 1 1 1 2 4 4 14 11 16 48
26 1 19 28 23 10 3 0 5 5 9 18 11 43 59 31 2 0 0 0 0 0 10 2 2 3 0 1 7 28 20 13 10 18 29
25 3 22 21 21 14 9 6 4 3 4 13 19 54 43 11 1 0 0 0 1 6 3 3 1 1 5 3 8 9 8 11 15
12 1 17 20 20 25 19 14 9 4 0 0 7 5 6 3 3 1 0 1 3 4 6 7 9 8 6 5 4 3 3 4 10
11 1 18 32 43 53 63 56 41 19 1 0 1 3 27 80 78 59 9 0 0 0 8 20 28 29 43 80 59 49 16 20 3 4 8 14
18 2 20 31 40 43 48 56 49 31 6 0 1 43 102 107 97 17 0 0 2 5 31 66 69 66 111 89 49 17 4 3 38 28 26
33 2 16 18 16 17 21 26 29 24 15 0 3 18 40 72 82 44 9 0 13 14 4 37 49 54 98 88 28 6 43 72 60
8 2 21 17 17 15 16 16 17 17 8 0 8 4 15 20 19 23 20 19 13 22 9 2 22 37 48 83 55 30 25 7 53 56 88
0 0 9 8 7 9 8 8 7 10 4 0 1 3 8 14 16 13 16 13 6 5 15 20 25 20 28 18 0
1 0

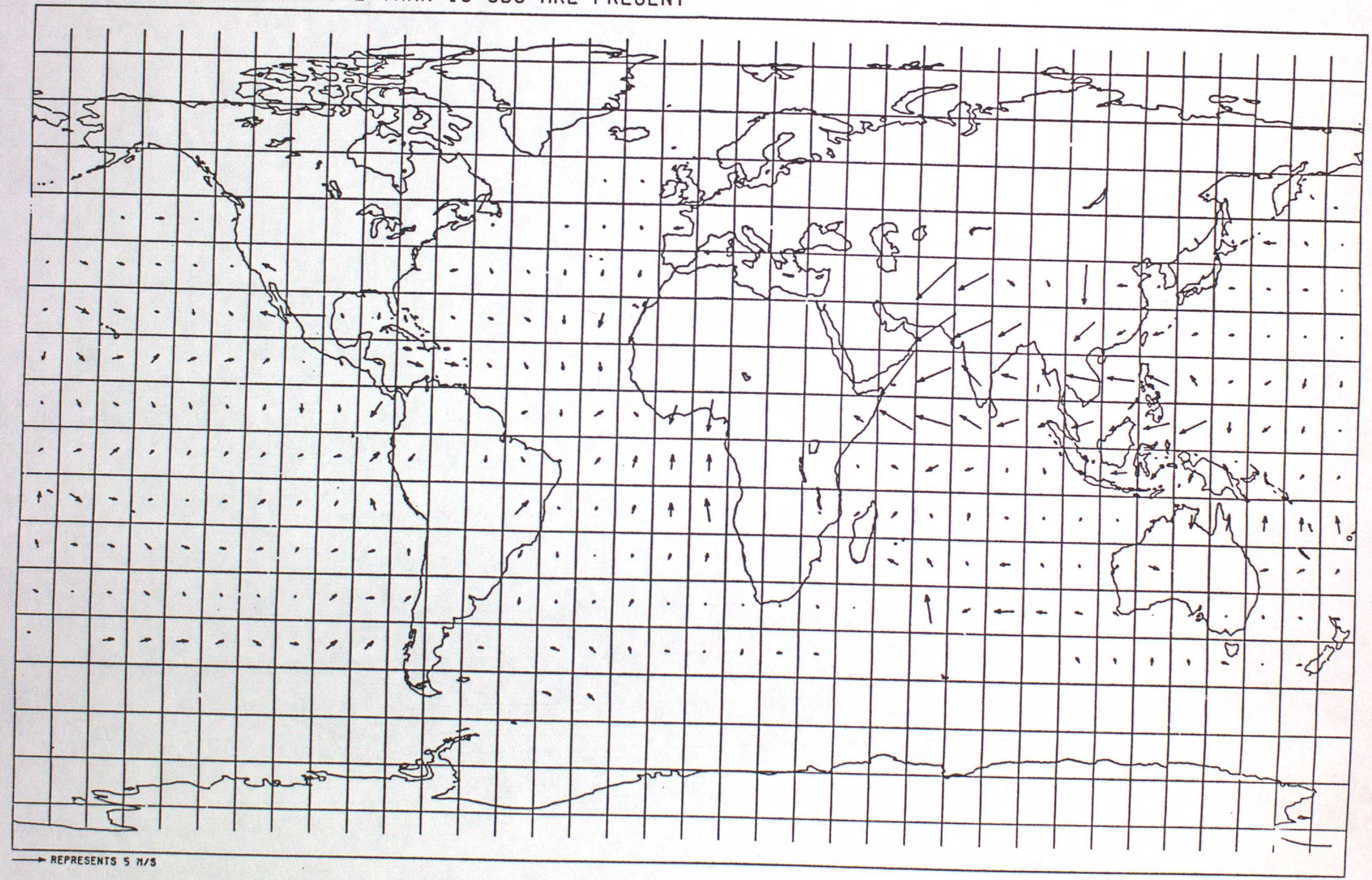
SATOB VECTOR MEAN WINDS BETWEEN 701-1000 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 11

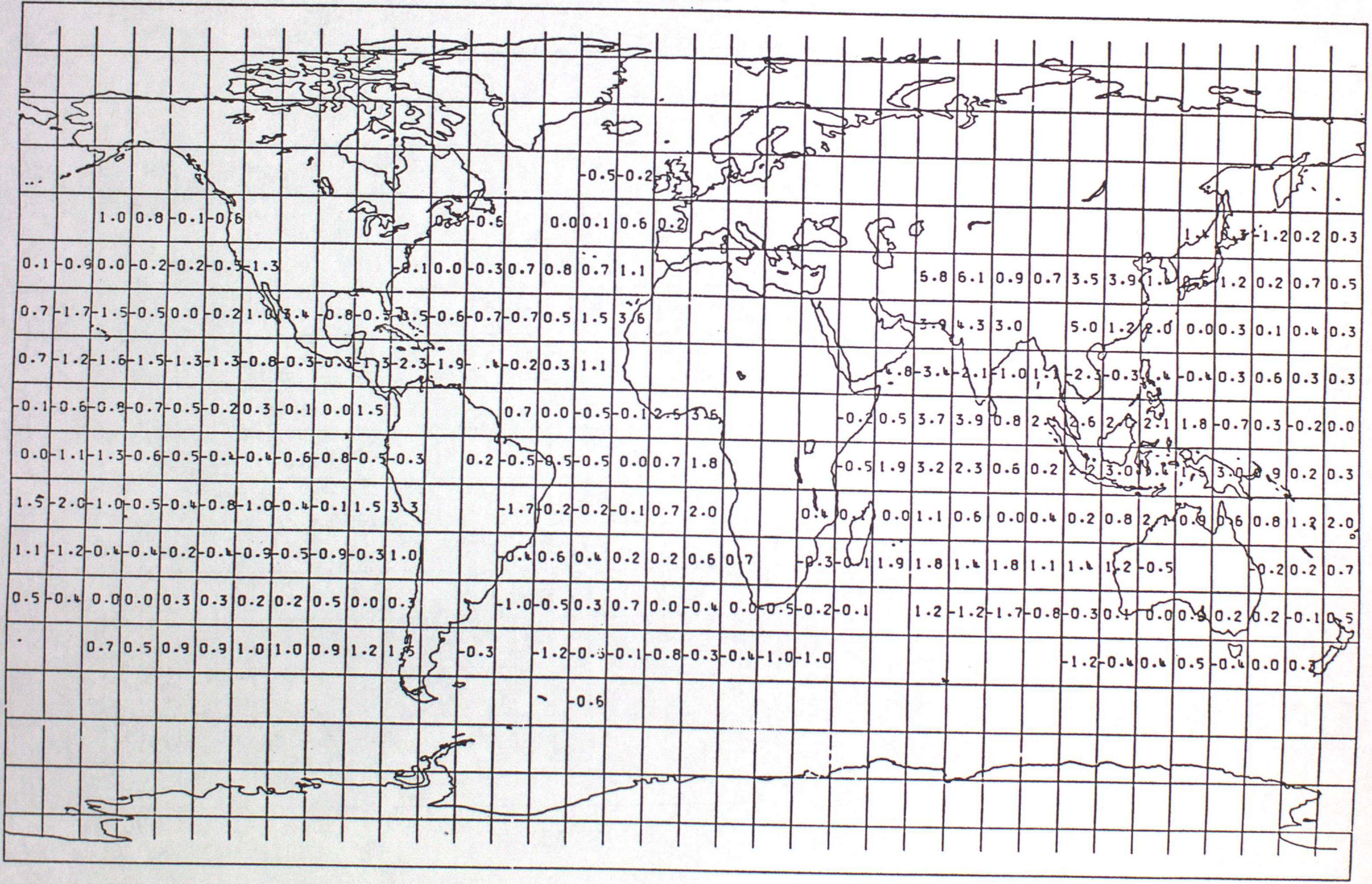

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

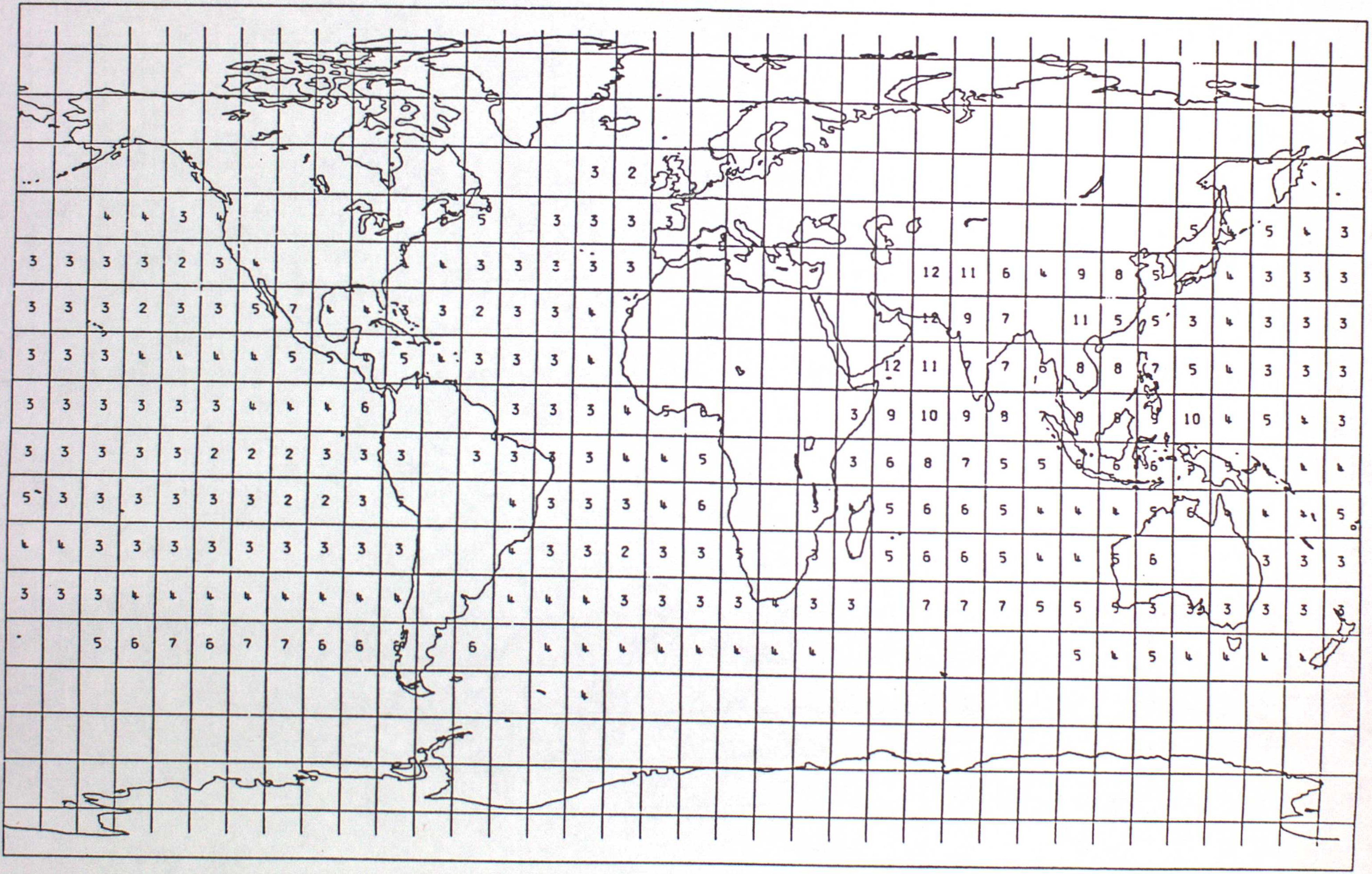
FIGURE 12


REPRESENTS 5 M/S

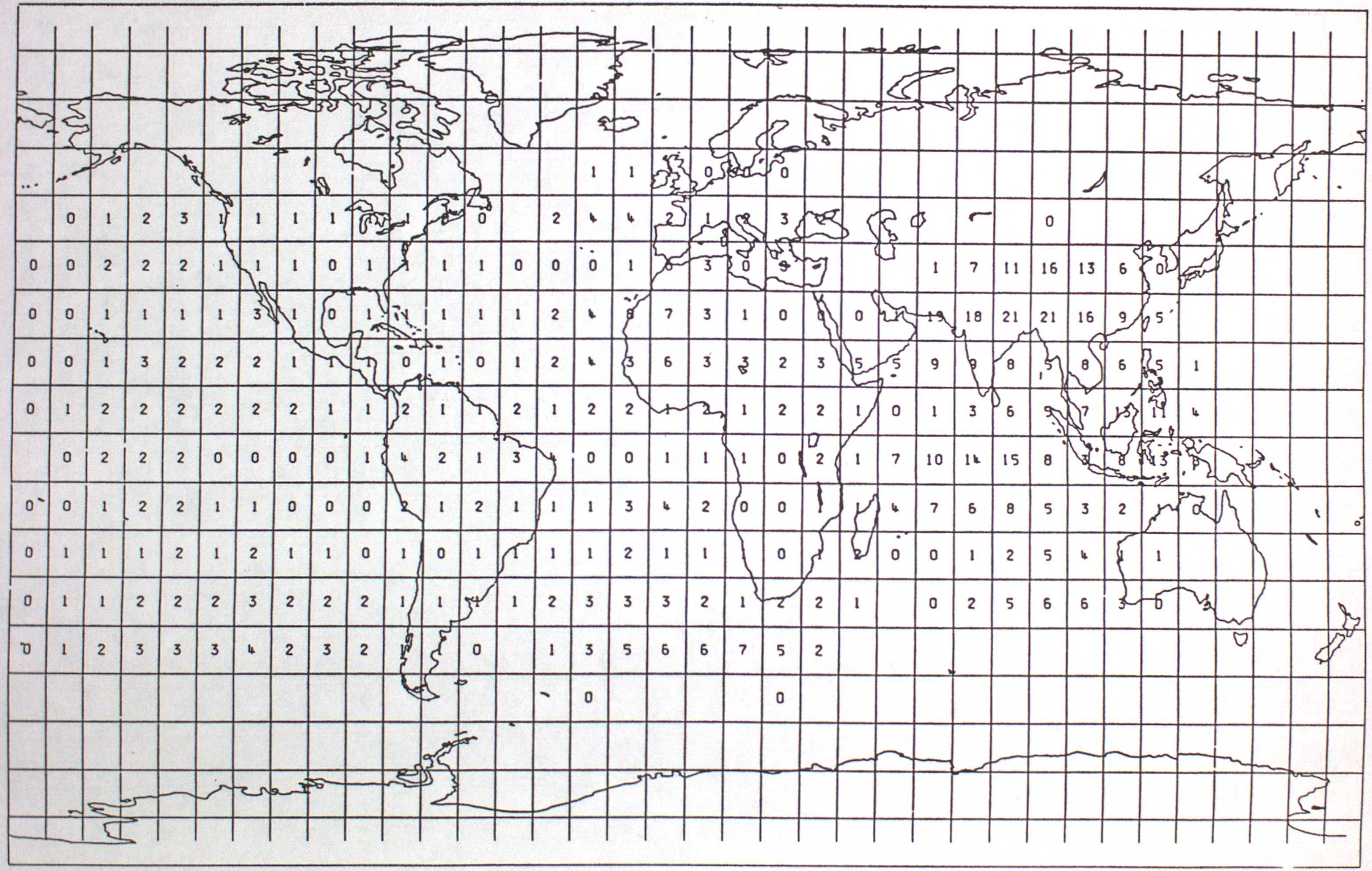
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-0.5 -0.2
1.0 0.8 -0.1 -0.6 0.3 -0.6 0.0 0.1 0.6 0.2 1.4 3.3 -1.2 0.2 0.3
0.1 -0.9 0.0 -0.2 -0.2 -0.5 -1.3 -0.1 0.0 -0.3 0.7 0.8 0.7 1.1 5.8 6.1 0.9 0.7 3.5 3.9 1.6 0.5 1.2 0.2 0.7 0.5
0.7 -1.7 -1.5 -0.5 0.0 -0.2 1.0 3.4 -0.8 -0.5 3.5 -0.6 -0.7 -0.7 0.5 1.5 3.6 3.9 4.3 3.0 5.0 1.2 2.0 0.0 0.3 0.1 0.4 0.3
0.7 -1.2 -1.6 -1.5 -1.3 -1.3 -0.8 -0.3 -0.3 -1.3 -2.3 -1.9 .4 -0.2 0.3 1.1 4.8 -3.4 -2.1 -1.0 1.1 -2.3 -0.3 .4 -0.4 0.3 0.6 0.3 0.3
-0.1 -0.6 -0.8 -0.7 -0.5 -0.2 0.3 -0.1 0.0 1.5 0.7 0.0 -0.5 -0.1 2.5 3.6 -0.2 0.5 3.7 3.9 0.8 2.4 2.6 2.0 2.1 1.8 -0.7 0.3 -0.2 0.0
0.0 -1.1 -1.3 -0.6 -0.5 -0.4 -0.4 -0.6 -0.8 -0.5 -0.3 0.2 -0.5 -0.5 -0.5 0.0 0.7 1.8 -0.5 1.9 3.2 2.3 0.6 0.2 2.2 3.0 1.4 1.5 3.0 0.9 0.2 0.3
1.5 -2.0 -1.0 -0.5 -0.4 -0.8 -1.0 -0.4 -0.1 1.5 3.3 -1.7 -0.2 -0.2 -0.1 0.7 2.0 0.4 0.2 0.0 1.1 0.6 0.0 0.4 0.2 0.8 2.1 -0.9 0.6 0.8 1.2 2.0
1.1 -1.2 -0.4 -0.4 -0.2 -0.4 -0.9 -0.5 -0.9 -0.3 1.0 0.4 0.6 0.4 0.2 0.2 0.6 0.7 -0.3 -0.1 1.9 1.8 1.4 1.8 1.1 1.4 1.2 -0.5 -0.2 0.2 0.7
0.5 -0.4 0.0 0.0 0.3 0.3 0.2 0.2 0.5 0.0 0.3 -1.0 -0.5 0.3 0.7 0.0 -0.4 0.0 -0.5 -0.2 -0.1 1.2 -1.2 -1.7 -0.8 -0.3 0.1 0.0 0.5 0.2 0.2 -0.1 0.5
0.7 0.5 0.9 0.9 1.0 1.0 0.9 1.2 1.5 -0.3 -1.2 -0.5 -0.1 -0.8 -0.3 -0.4 -1.0 -1.0 -1.2 -0.4 0.4 0.5 -0.4 0.0 0.3
-0.6

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

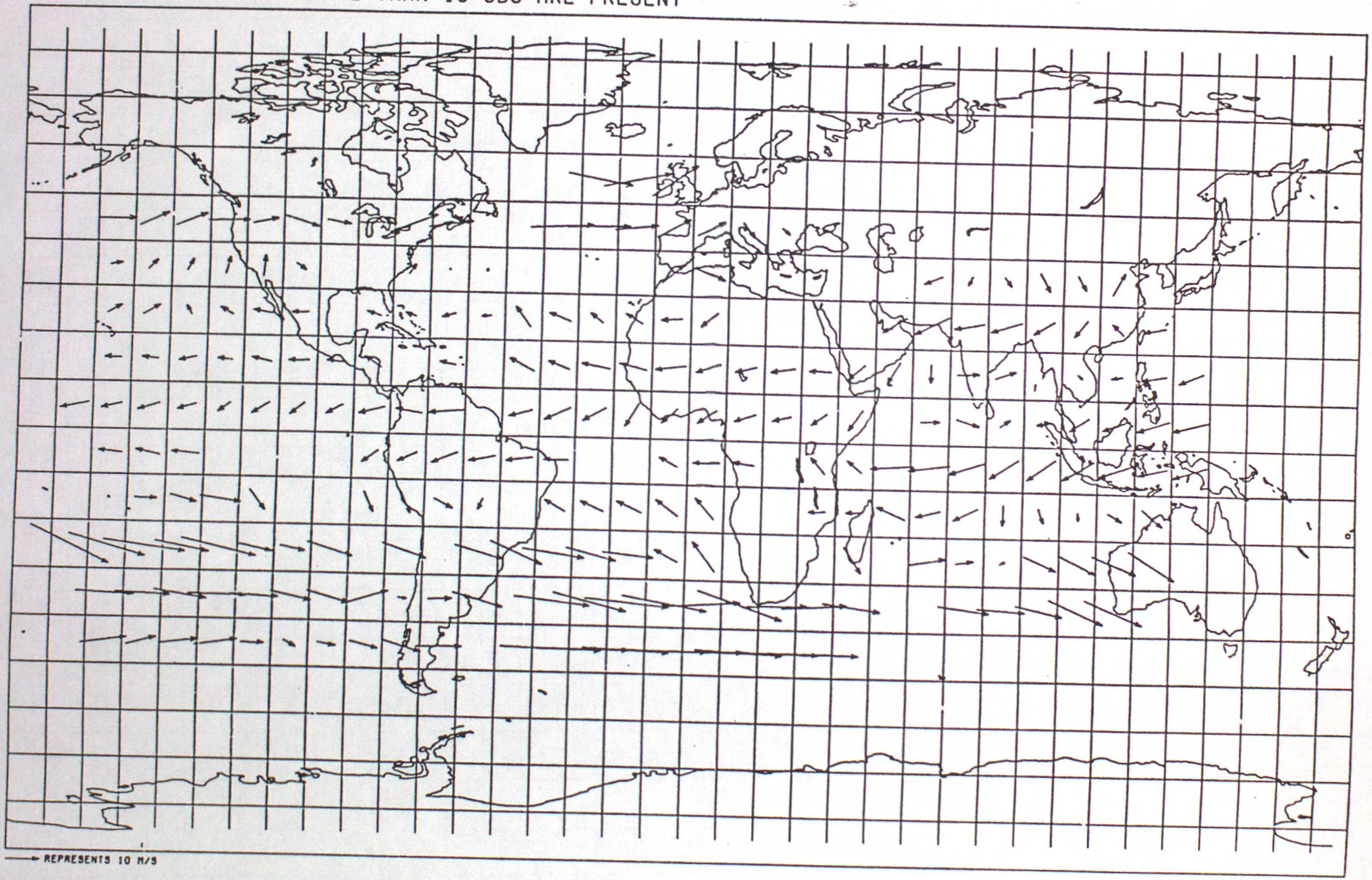


AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JULY 1994


1 1 0 0
0 1 2 3 1 1 1 1 1 0 2 4 4 2 1 2 3 0
0 0 2 2 2 1 1 1 0 1 1 1 1 0 0 0 1 3 3 0 9 1 7 11 16 13 6 0
0 0 1 1 1 1 3 1 0 1 1 1 1 1 2 4 8 7 3 1 0 0 0 1 19 18 21 21 16 9 5
0 0 1 3 2 2 2 1 1 1 0 1 0 1 2 4 3 6 3 3 2 3 5 5 9 9 8 5 8 6 5 1
0 1 2 2 2 2 2 2 1 1 2 1 1 2 1 2 2 1 2 1 2 2 1 0 1 3 6 9 7 13 11 4
0 2 2 2 0 0 0 0 1 4 2 1 3 4 0 0 1 1 1 0 2 1 7 10 14 15 8 3 8 13
0 0 1 2 2 1 1 0 0 0 2 1 2 1 1 1 3 4 2 0 0 1 1 4 7 6 8 5 3 2 1 0
0 1 1 1 2 1 2 1 1 0 1 0 1 1 1 1 2 1 1 1 0 1 2 0 0 1 2 5 4 1 1
0 1 1 2 2 2 3 2 2 2 1 1 1 1 2 3 3 3 2 1 2 2 1 0 2 5 6 6 3 0 3
0 1 2 3 3 3 4 2 3 2 1 1 0 1 3 5 6 6 7 5 2
0 0

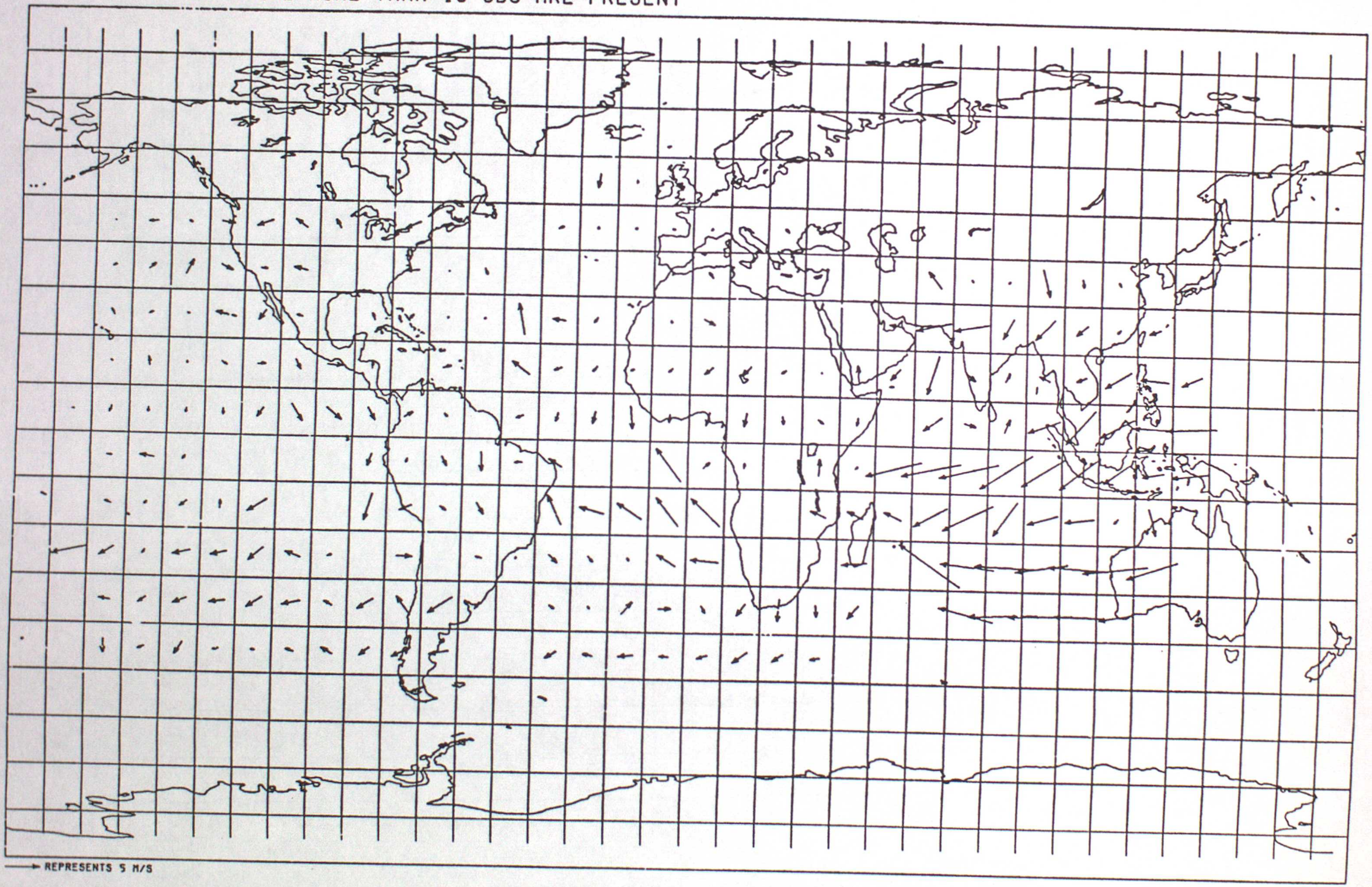
SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

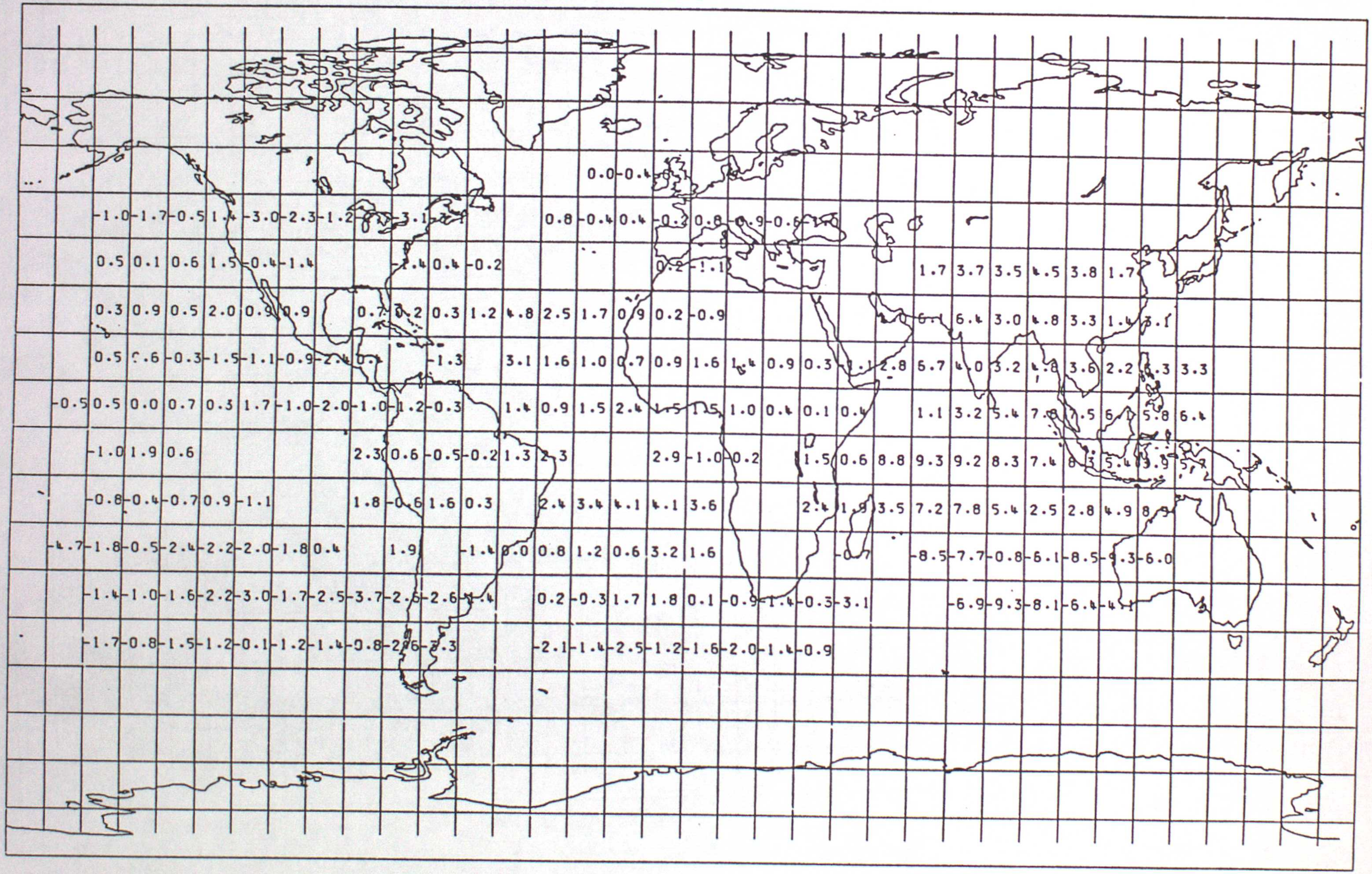

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

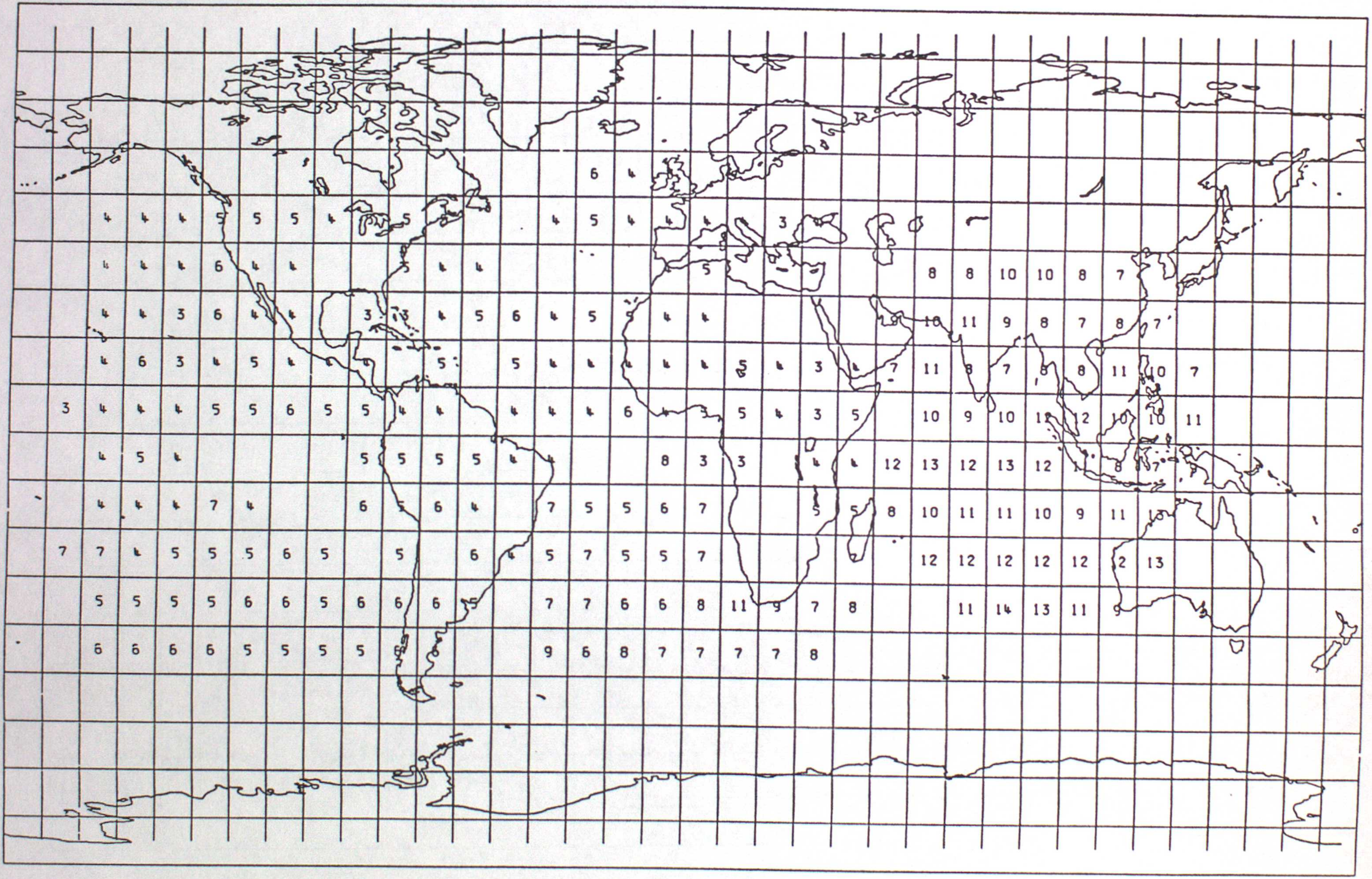
FIGURE 17


REPRESENTS 5 M/S

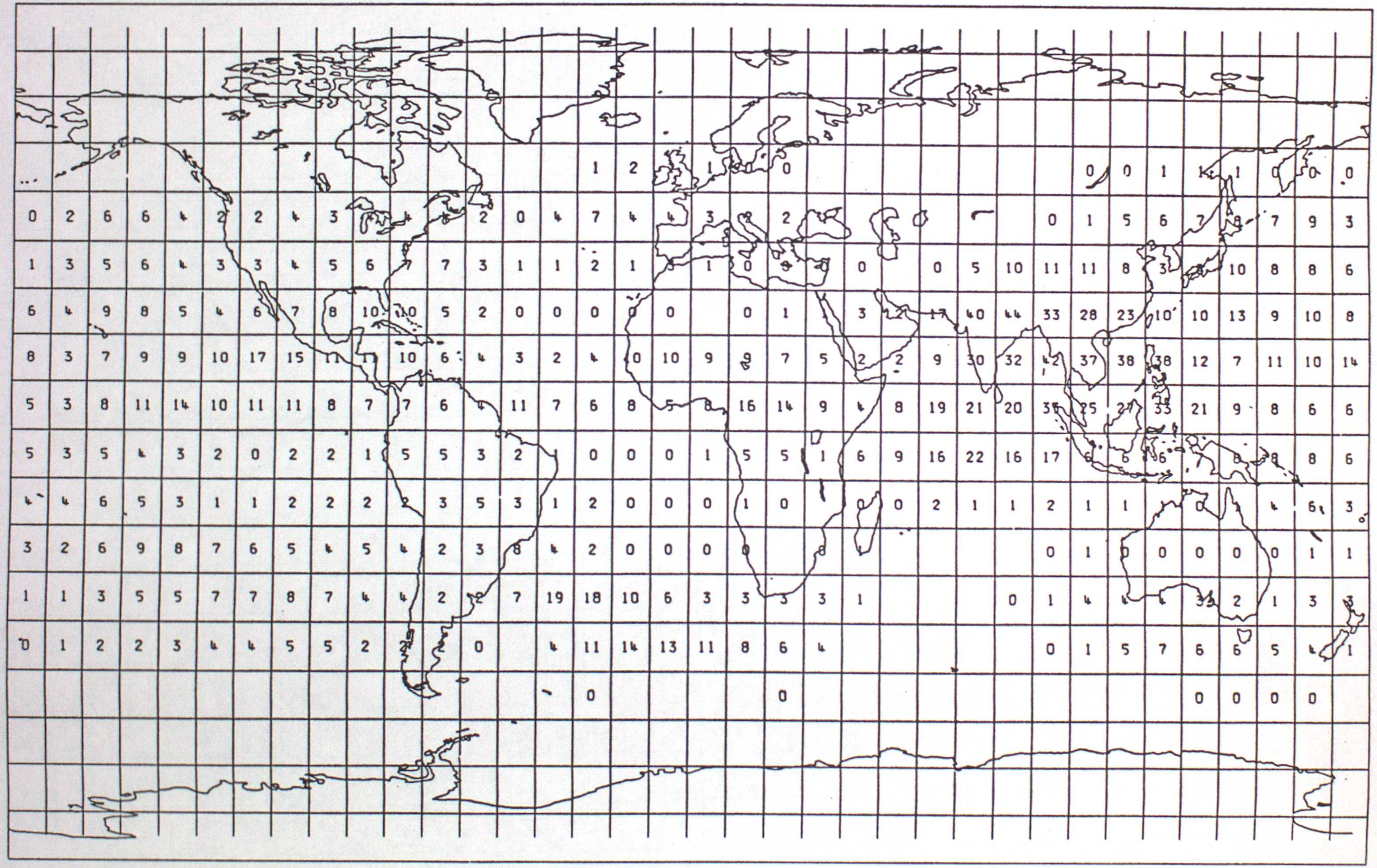
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


0.0 -0.4
-1.0 -1.7 -0.5 1.4 -3.0 -2.3 -1.2 -3.1 0.8 -0.4 0.4 -0.2 0.8 -0.9 -0.6
0.5 0.1 0.6 1.5 -0.4 -1.4 -1.4 0.4 -0.2 0.2 -1.1 1.7 3.7 3.5 4.5 3.8 1.7
0.3 0.9 0.5 2.0 0.9 0.9 0.7 0.2 0.3 1.2 4.8 2.5 1.7 0.9 0.2 -0.9 6.1 6.4 3.0 4.8 3.3 1.4 3.1
0.5 0.6 -0.3 -1.5 -1.1 -0.9 -2.4 0.4 -1.3 3.1 1.6 1.0 0.7 0.9 1.6 1.4 0.9 0.3 -1.1 2.8 6.7 4.0 3.2 4.8 3.6 2.2 6.3 3.3
-0.5 0.5 0.0 0.7 0.3 1.7 -1.0 -2.0 -1.0 -1.2 -0.3 1.4 0.9 1.5 2.4 1.5 1.5 1.0 0.4 0.1 0.4 1.1 3.2 5.4 7.8 7.5 6.1 5.8 6.4
-1.0 1.9 0.6 2.3 0.6 -0.5 -0.2 1.3 2.3 2.9 -1.0 0.2 1.5 0.6 8.8 9.3 9.2 8.3 7.4 8.3 5.4 3.9 5.7
-0.8 -0.4 -0.7 0.9 -1.1 1.8 -0.6 1.6 0.3 2.4 3.4 4.1 4.1 3.6 2.4 1.9 3.5 7.2 7.8 5.4 2.5 2.8 4.9 8.9
-4.7 -1.8 -0.5 -2.4 -2.2 -2.0 -1.8 0.4 1.9 -1.4 0.0 0.8 1.2 0.6 3.2 1.6 -0.7 -8.5 -7.7 -0.8 -6.1 -8.5 -9.3 -6.0
-1.4 -1.0 -1.6 -2.2 -3.0 -1.7 -2.5 -3.7 -2.6 -2.6 -1.4 0.2 -0.3 1.7 1.8 0.1 -0.9 -1.4 -0.3 -3.1 -6.9 -9.3 -8.1 -6.4 -4.1
-1.7 -0.8 -1.5 -1.2 -0.1 -1.2 -1.4 -0.8 -2.6 -2.3 -2.1 -1.4 -2.5 -1.2 -1.6 -2.0 -1.4 -0.9

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

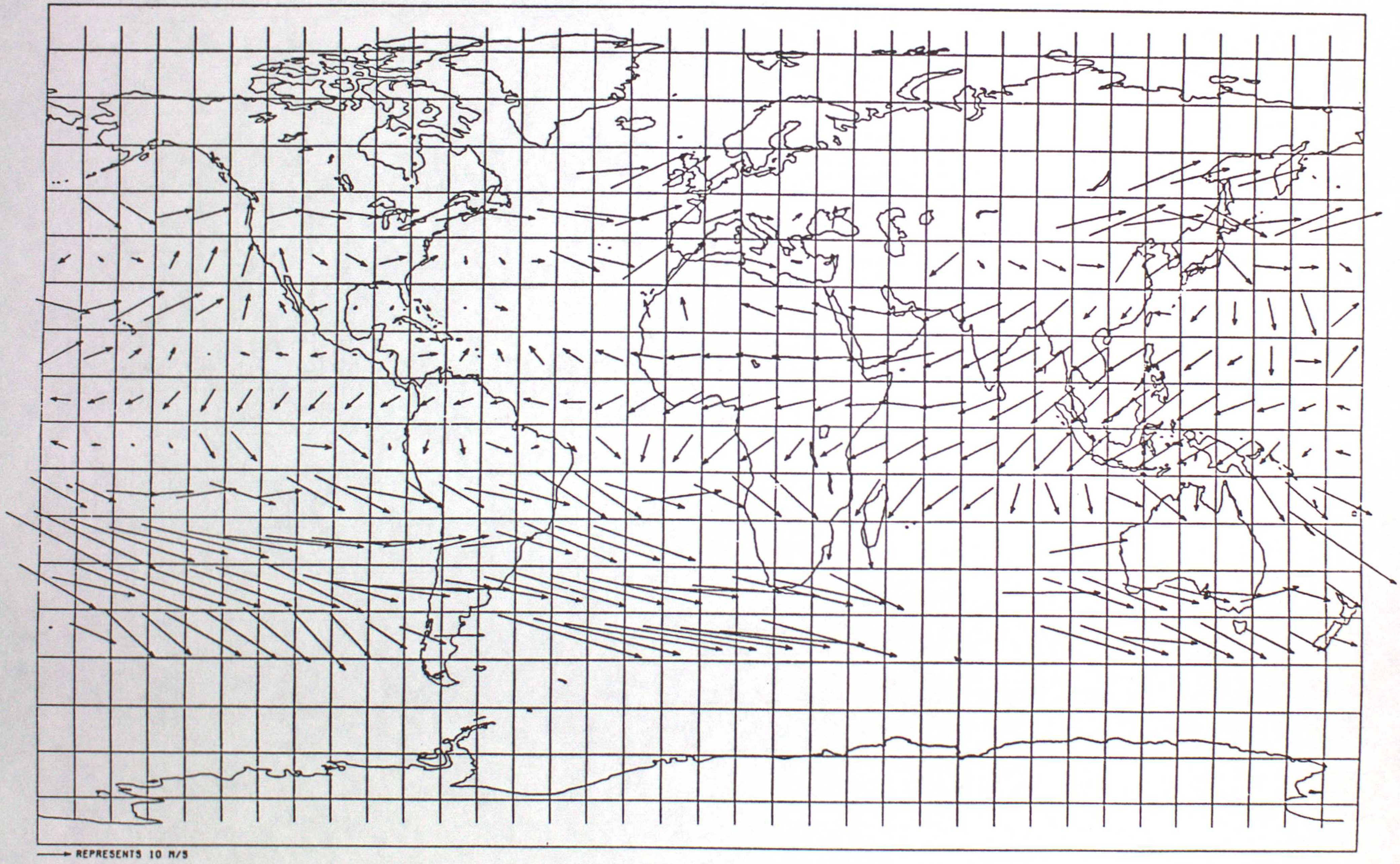

6 4
4 4 4 5 5 5 4 5 4 5 4 4 4 4 3
4 4 4 6 4 4 5 4 4 5 8 8 10 10 8 7
4 4 3 6 4 4 3 3 4 5 6 4 5 5 4 4 8 10 11 9 8 7 8 7
4 6 3 4 5 4 4 4 5 5 4 4 4 4 4 5 4 3 4 7 11 8 7 8 8 11 10 7
3 4 4 4 5 5 6 5 5 4 4 4 4 4 6 4 3 5 4 3 5 10 9 10 12 12 10 10 11
4 5 4 5 5 5 5 4 4 8 3 3 4 4 12 13 12 13 12 1 8 7
4 4 4 7 4 6 5 6 4 7 5 5 6 7 5 5 8 10 11 11 10 9 11 13
7 7 4 5 5 5 6 5 5 6 4 5 7 5 5 7 7 12 12 12 12 12 2 13
5 5 5 5 6 6 5 6 6 6 5 7 7 6 6 8 11 9 7 8 11 14 13 11 9
6 6 6 6 5 5 5 5 6 6 9 6 8 7 7 7 7 8

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JULY 1994


1 2 1 0 0 0 1 1 1 0 0 0
0 2 6 6 4 2 2 4 3 4 8 2 0 4 7 4 4 3 2 2 0 1 5 6 7 8 7 9 3
1 3 5 6 4 3 3 4 5 6 7 7 3 1 1 2 1 3 1 0 9 0 0 0 5 10 11 11 8 3 8 10 8 8 6
6 4 9 8 5 4 6 7 8 10 10 5 2 0 0 0 0 0 0 1 1 3 12 17 40 44 33 28 23 10 10 13 9 10 8
8 3 7 9 9 10 17 15 11 11 10 6 4 3 2 4 10 10 9 9 7 5 2 2 9 30 32 42 37 38 38 12 7 11 10 14
5 3 8 11 14 10 11 11 8 7 7 6 4 11 7 6 8 5 8 16 14 9 4 8 19 21 20 35 25 27 33 21 9 8 6 6
5 3 5 4 3 2 0 2 2 1 5 5 3 2 1 0 0 0 1 5 5 1 6 9 16 22 16 17 6 6 6 7 8 8 8 6
4 4 6 5 3 1 1 2 2 2 2 3 5 3 1 2 0 0 0 1 0 0 0 2 1 1 2 1 1 0 4 4 6 3
3 2 6 9 8 7 6 5 4 5 4 2 3 8 4 2 0 0 0 0 8 1 0 1 0 0 0 0 0 1 1
1 1 3 5 5 7 7 8 7 4 4 2 2 7 19 18 10 6 3 3 3 3 1 0 1 4 4 4 33 2 1 3 3
0 1 2 2 3 4 4 5 5 2 2 2 0 4 11 14 13 11 8 6 4 0 1 5 7 6 6 5 4 1
0 0 0 0 0 0

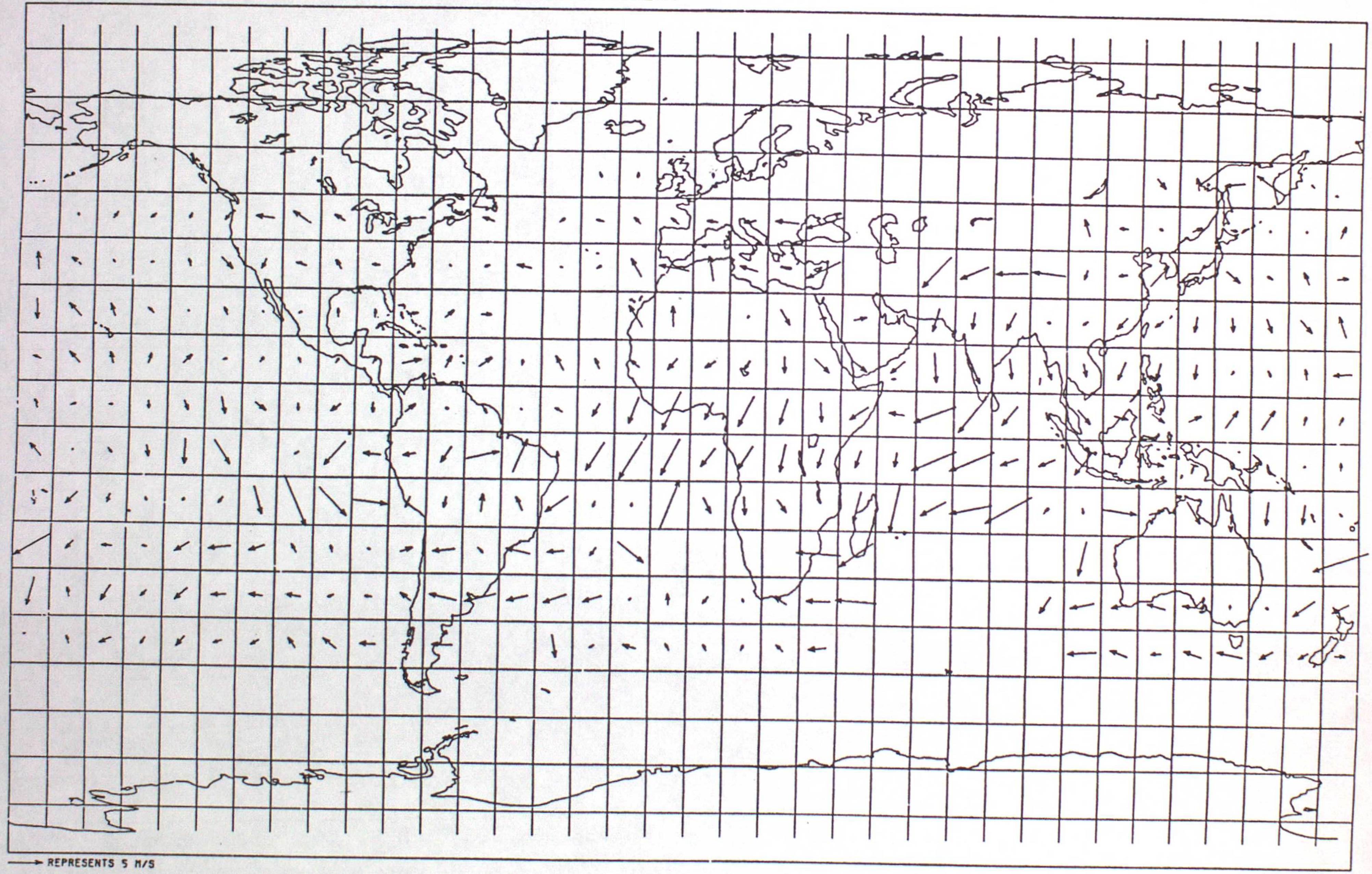
SATOB VECTOR MEAN WINDS BETWEEN 101-400 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

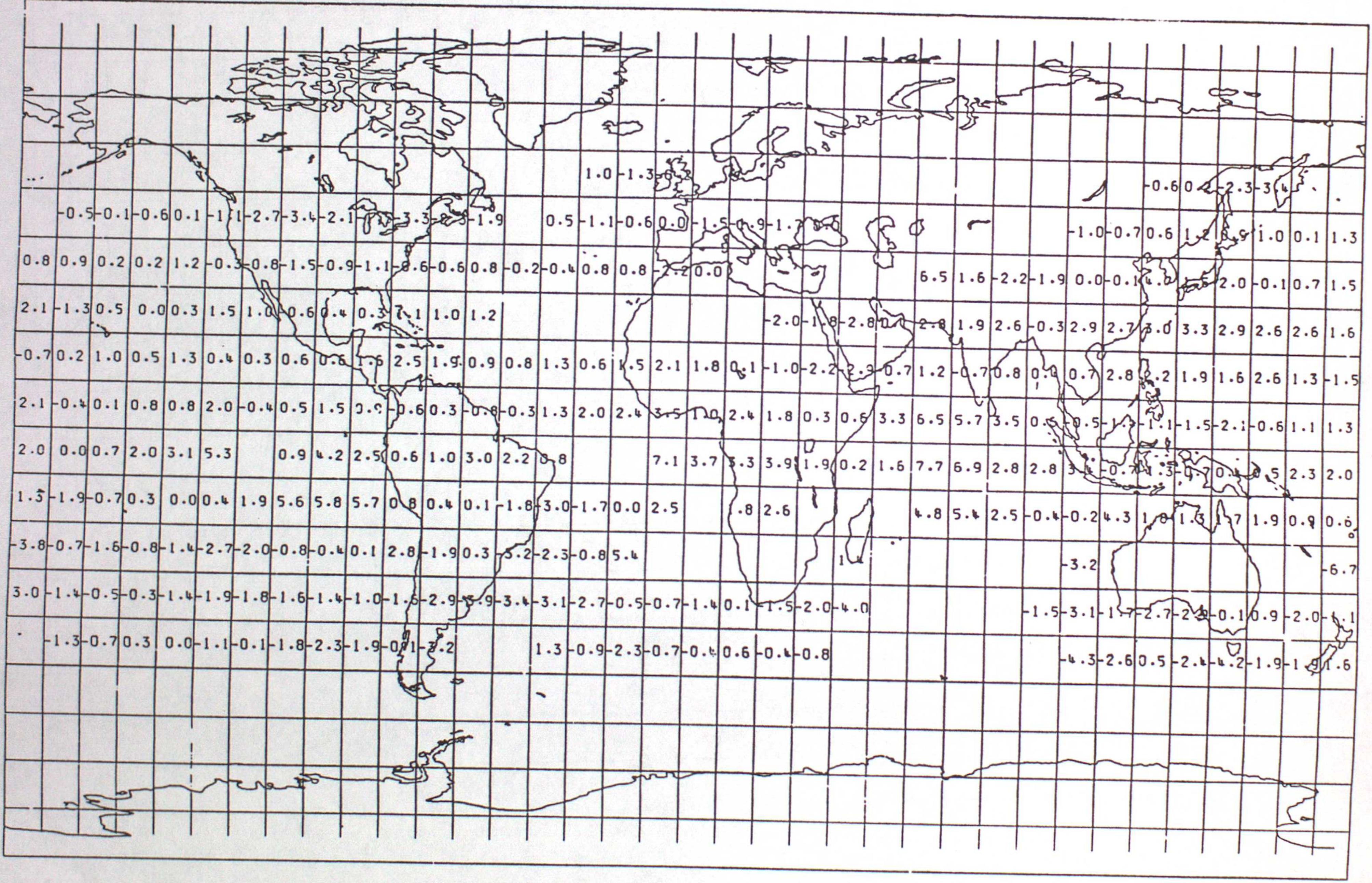

REPRESENTS 10 M/S

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA
JULY 1994
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

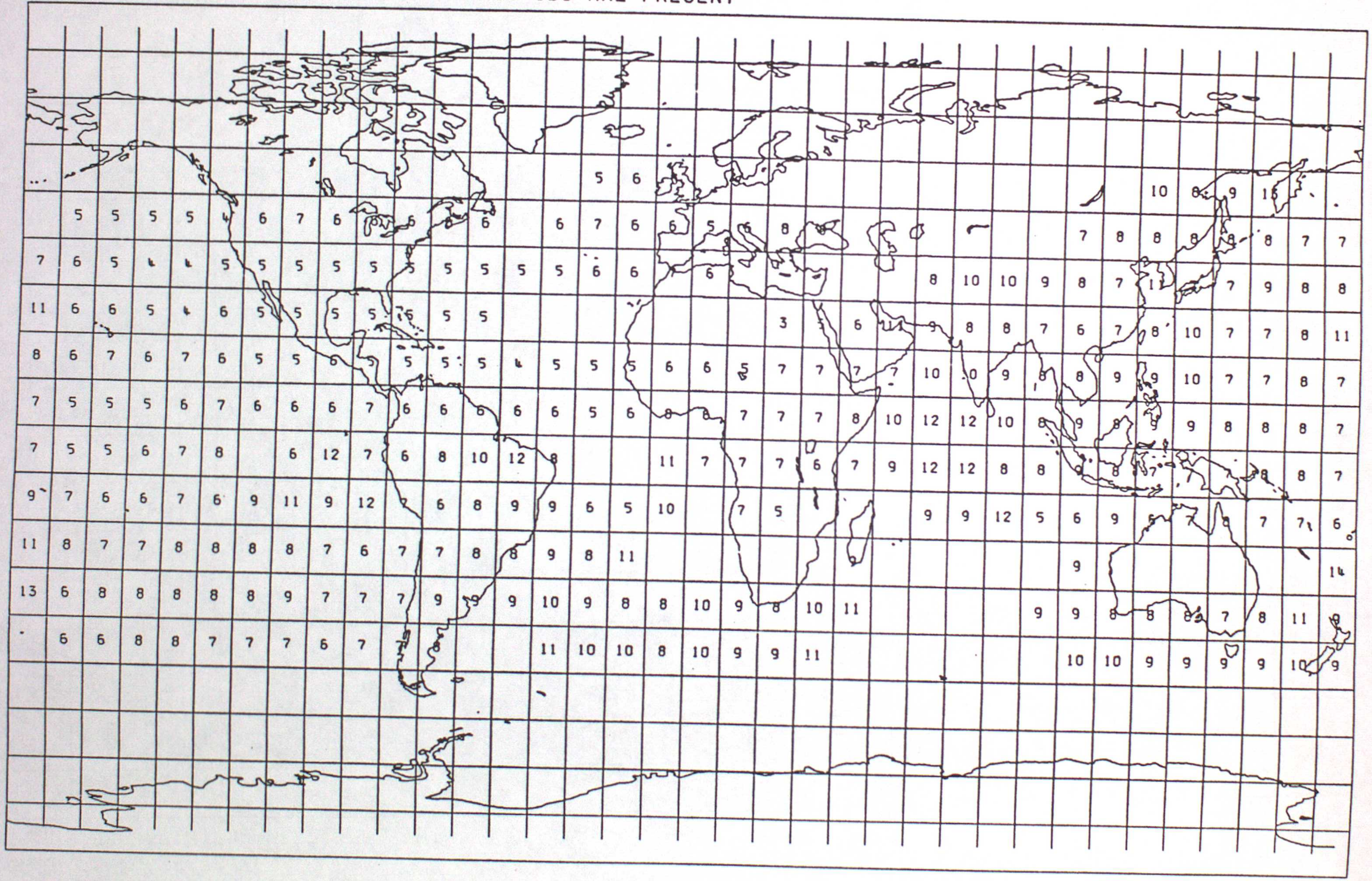
FIGURE 22


REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.0 -1.3 -0.6 -2.3 -3.4
-0.5 -0.1 -0.6 0.1 -1 1 -2.7 -3.4 -2.1 -3.3 -1.9 0.5 -1.1 -0.6 0.0 -1.5 -0.9 -1.7 -1.0 -0.7 0.6 1.2 1.0 0.1 1.3
0.8 0.9 0.2 0.2 1.2 -0.3 -0.8 -1.5 -0.9 -1.1 -0.6 -0.6 0.8 -0.2 -0.4 0.8 0.8 -2.2 0.0 6.5 1.6 -2.2 -1.9 0.0 -0.1 2.0 -0.1 0.7 1.5
2.1 -1.3 0.5 0.0 0.3 1.5 1.0 -0.6 0.4 0.3 1.1 1.0 1.2 -2.0 -1.8 -2.8 2.8 1.9 2.6 -0.3 2.9 2.7 3.0 3.3 2.9 2.6 2.6 1.6
-0.7 0.2 1.0 0.5 1.3 0.4 0.3 0.6 0.8 1.6 2.5 1.9 0.9 0.8 1.3 0.6 1.5 2.1 1.8 0.1 -1.0 -2.2 2.3 -0.7 1.2 -0.7 0.8 0.0 0.7 2.8 2.2 1.9 1.6 2.6 1.3 -1.5
2.1 -0.4 0.1 0.8 0.8 2.0 -0.4 0.5 1.5 -0.6 0.3 -0.8 -0.3 1.3 2.0 2.4 3.5 1.0 2.4 1.8 0.3 0.6 3.3 6.5 5.7 3.5 -0.5 -1.1 -1.5 -2.1 -0.6 1.1 1.3
2.0 0.0 0.7 2.0 3.1 5.3 0.9 4.2 2.5 0.6 1.0 3.0 2.2 0.8 7.1 3.7 3.3 3.9 1.9 0.2 1.6 7.7 6.9 2.8 2.8 -0.7 0.5 2.3 2.0
1.5 -1.9 -0.7 0.3 0.0 0.4 1.9 5.6 5.8 5.7 0.8 0.4 0.1 -1.8 3.0 -1.7 0.0 2.5 .8 2.6 4.8 5.4 2.5 -0.4 -0.2 4.3 1.3 1.7 1.9 0.9 0.6
-3.8 -0.7 -1.6 -0.8 -1.4 -2.7 -2.0 -0.8 -0.4 0.1 2.8 -1.9 0.3 -3.2 -2.3 -0.8 5.4 -3.2 -6.7
3.0 -1.4 -0.5 -0.3 -1.4 -1.9 -1.8 -1.6 -1.4 -1.0 -1.6 -2.9 -3.9 -3.4 -3.1 -2.7 -0.5 -0.7 -1.4 0.1 -1.5 -2.0 -4.0 -1.5 -3.1 -1.7 -2.7 -2.3 -0.1 0.9 -2.0
-1.3 -0.7 0.3 0.0 -1.1 -0.1 -1.8 -2.3 -1.9 -0.1 -2.2 1.3 -0.9 -2.3 -0.7 -0.4 0.6 -0.4 -0.8 -4.3 -2.6 0.5 -2.4 -4.2 -1.9 -1.9 1.6

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
JULY 1994
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5 6 10 8 9 15
5 5 5 5 4 6 7 6 6 8 6 6 7 6 6 5 6 8 7 8 8 8 8 8 7 7
7 6 5 4 4 5 5 5 5 5 5 5 5 5 5 6 6 6
8 10 10 9 8 7 11 7 9 8 8
11 6 6 5 4 6 5 5 5 5 6 5 5
3 6 11 9 8 8 7 6 7 8 10 7 7 8 11
8 6 7 6 7 6 5 5 6 5 5 5 5 4 5 5 5 6 6 5 7 7 7 7 10 10 9 8 8 9 9 10 7 7 8 7
7 5 5 5 6 7 6 6 6 7 6 6 6 6 6 5 6 8 8 7 7 7 8 10 12 12 10 8 9 8 9 9 8 8 8 7
7 5 5 6 7 8 6 12 7 6 8 10 12 8 11 7 7 7 6 7 9 12 12 8 8 9 8 7 8 8 7
9 7 6 6 7 6 9 11 9 12 7 6 8 9 9 6 5 10 7 5 9 9 12 5 6 9 6 7 8 7 7 6
11 8 7 7 8 8 8 8 7 6 7 7 8 8 9 8 11 9 14
13 6 8 8 8 8 8 9 7 7 7 9 9 9 10 9 8 8 10 9 8 10 11 9 9 8 8 8 7 8 11 9
6 6 8 8 7 7 7 6 7 7 8 11 10 10 8 10 9 9 11 10 10 9 9 9 9 10 9

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-11, NOAA-12 500 km.

Standard of comparison :Background field from Bracknell global model.

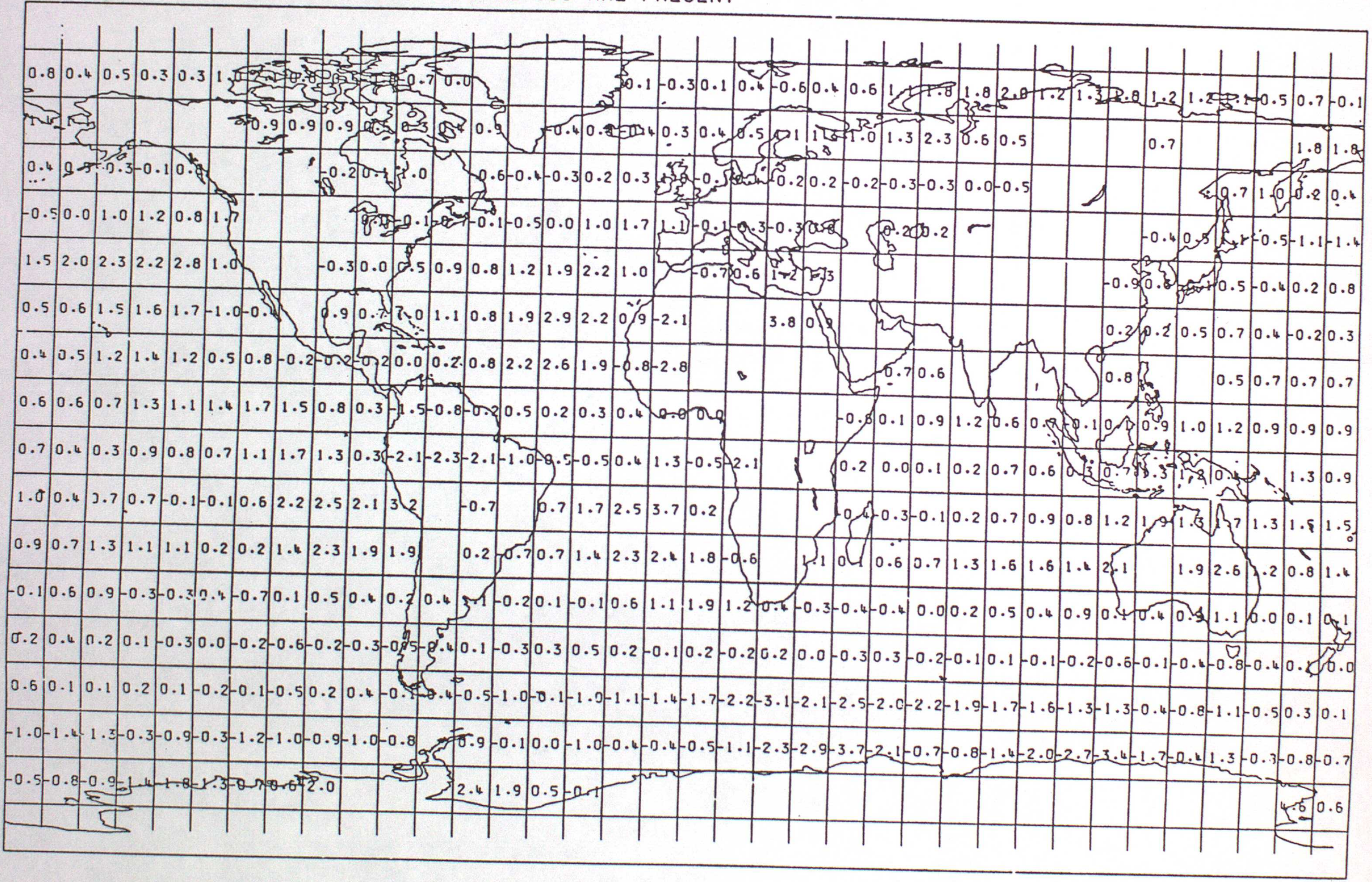
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

:Mean observation minus background temperature differences

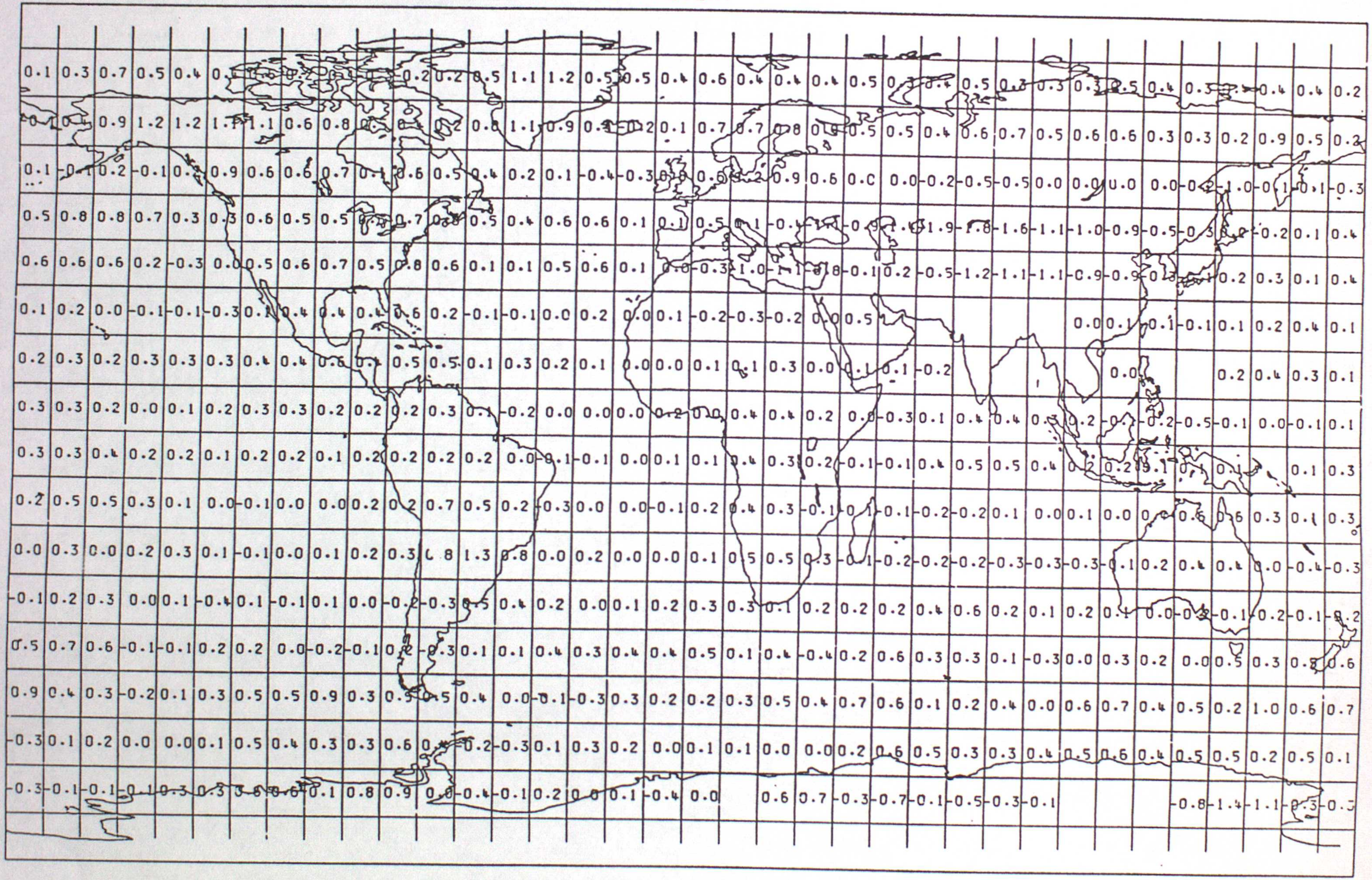
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1994
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25


0.8 0.4 0.5 0.3 0.3 -0.7 0.0 0.1 -0.3 0.1 0.4 -0.6 0.4 0.6 1.8 1.8 2.0 1.2 1.3 1.2 1.2 -0.5 0.7 -0.1
0.9 0.9 0.9 0.9 -0.4 0.3 0.4 1.0 1.3 2.3 0.6 0.5 0.7 1.8 1.8
0.4 -0.3 -0.1 -0.2 0.6 -0.4 -0.3 0.2 0.3 -0.2 0.2 -0.2 -0.3 -0.3 0.0 -0.5 0.7 1.0 0.4
-0.5 0.0 1.0 1.2 0.8 1.7 -0.1 -0.1 -0.5 0.0 1.0 1.7 1.1 -0.1 -0.3 -0.3 0.2 0.2 -0.4 0.5 -0.5 -1.1 -1.4
1.5 2.0 2.3 2.2 2.8 1.0 -0.3 0.0 0.5 0.9 0.8 1.2 1.9 2.2 1.0 -0.7 0.6 1.2 1.3 -0.9 0.5 -0.4 0.2 0.8
0.5 0.6 1.5 1.6 1.7 -1.0 -0.9 0.7 1.0 1.1 0.8 1.9 2.9 2.2 0.9 -2.1 3.8 0.2 0.2 0.5 0.7 0.4 -0.2 0.3
0.4 0.5 1.2 1.4 1.2 0.5 0.8 -0.2 -0.2 0.2 0.0 0.2 0.8 2.2 2.6 1.9 -0.8 -2.8 0.7 0.6 0.8 0.5 0.7 0.7 0.7
0.6 0.6 0.7 1.3 1.1 1.4 1.7 1.5 0.8 0.3 -1.5 -0.8 -0.2 0.5 0.2 0.3 0.4 0.0 0.0 -0.8 0.1 0.9 1.2 0.6 0.1 0.9 1.0 1.2 0.9 0.9 0.9
0.7 0.4 0.3 0.9 0.8 0.7 1.1 1.7 1.3 0.3 -2.1 -2.3 -2.1 -1.0 -0.5 -0.5 0.4 1.3 -0.5 2.1 0.2 0.0 0.1 0.2 0.7 0.6 0.3 0.7 1.3 0.9
1.0 0.4 0.7 0.7 -0.1 -0.1 0.6 2.2 2.5 2.1 3.2 -0.7 0.7 1.7 2.5 3.7 0.2 0.4 -0.3 -0.1 0.2 0.7 0.9 0.8 1.2 1.3 1.7 1.3 1.5 1.5
0.9 0.7 1.3 1.1 1.1 0.2 0.2 1.4 2.3 1.9 1.9 0.2 -0.7 0.7 1.4 2.3 2.4 1.8 -0.6 1.1 0.1 0.6 0.7 1.3 1.6 1.6 1.4 2.1 1.9 2.6 1.2 0.8 1.4
-0.1 0.6 0.9 -0.3 -0.3 0.4 -0.7 0.1 0.5 0.4 0.2 0.4 -0.1 -0.2 0.1 -0.1 0.6 1.1 1.9 1.2 0.4 -0.3 -0.4 -0.4 0.0 0.2 0.5 0.4 0.9 0.4 0.4 0.9 1.1 0.0 0.1 0.1
0.2 0.4 0.2 0.1 -0.3 0.0 -0.2 -0.6 -0.2 -0.3 -0.5 -0.4 0.1 -0.3 0.3 0.5 0.2 -0.1 0.2 -0.2 0.2 0.0 -0.3 0.3 -0.2 -0.1 0.1 -0.1 -0.2 -0.6 -0.1 -0.4 -0.8 -0.4 0.1 0.0
0.6 0.1 0.1 0.2 0.1 -0.2 -0.1 -0.5 0.2 0.4 -0.1 -0.4 -0.5 -1.0 -0.1 -1.0 -1.1 -1.4 -1.7 -2.2 -3.1 -2.1 -2.5 -2.0 -2.2 -1.9 -1.7 -1.6 -1.3 -1.3 -0.4 -0.8 -1.1 -0.5 0.3 0.1
-1.0 -1.4 1.3 -0.3 -0.9 -0.3 -1.2 -1.0 -0.9 -1.0 -0.8 0.9 -0.1 0.0 -1.0 -0.4 -0.4 -0.5 -1.1 -2.3 -2.9 -3.7 -2.1 -0.7 -0.8 -1.4 -2.0 -2.7 -3.4 -1.7 -0.4 1.3 -0.3 -0.8 -0.7
-0.5 -0.8 -0.9 -1.4 -1.8 -1.3 -0.7 -0.6 2.0 2.4 1.9 0.5 -0.1 4.6 0.6

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1994
NOAA-11. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1994
NOAA-11, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

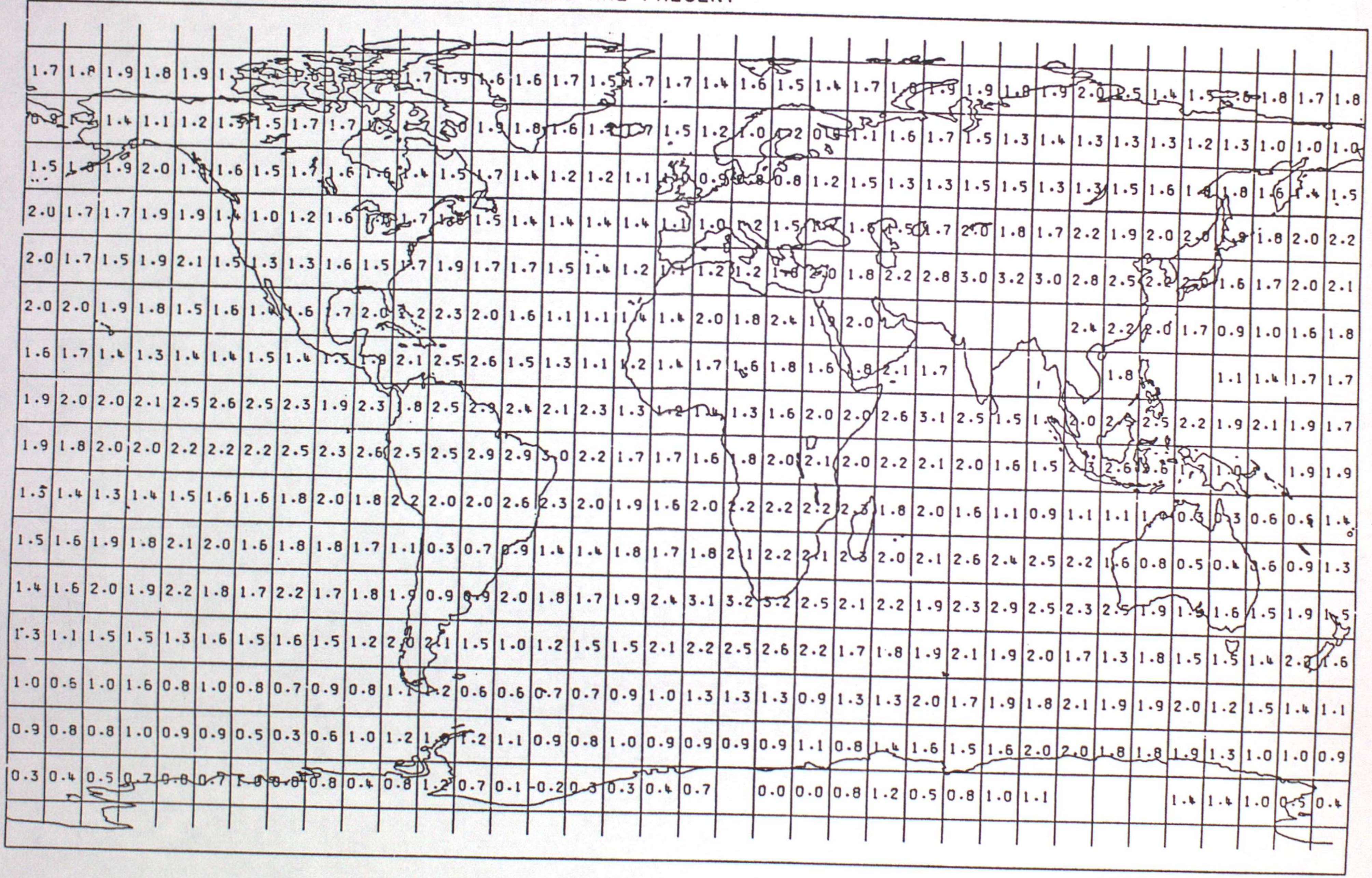
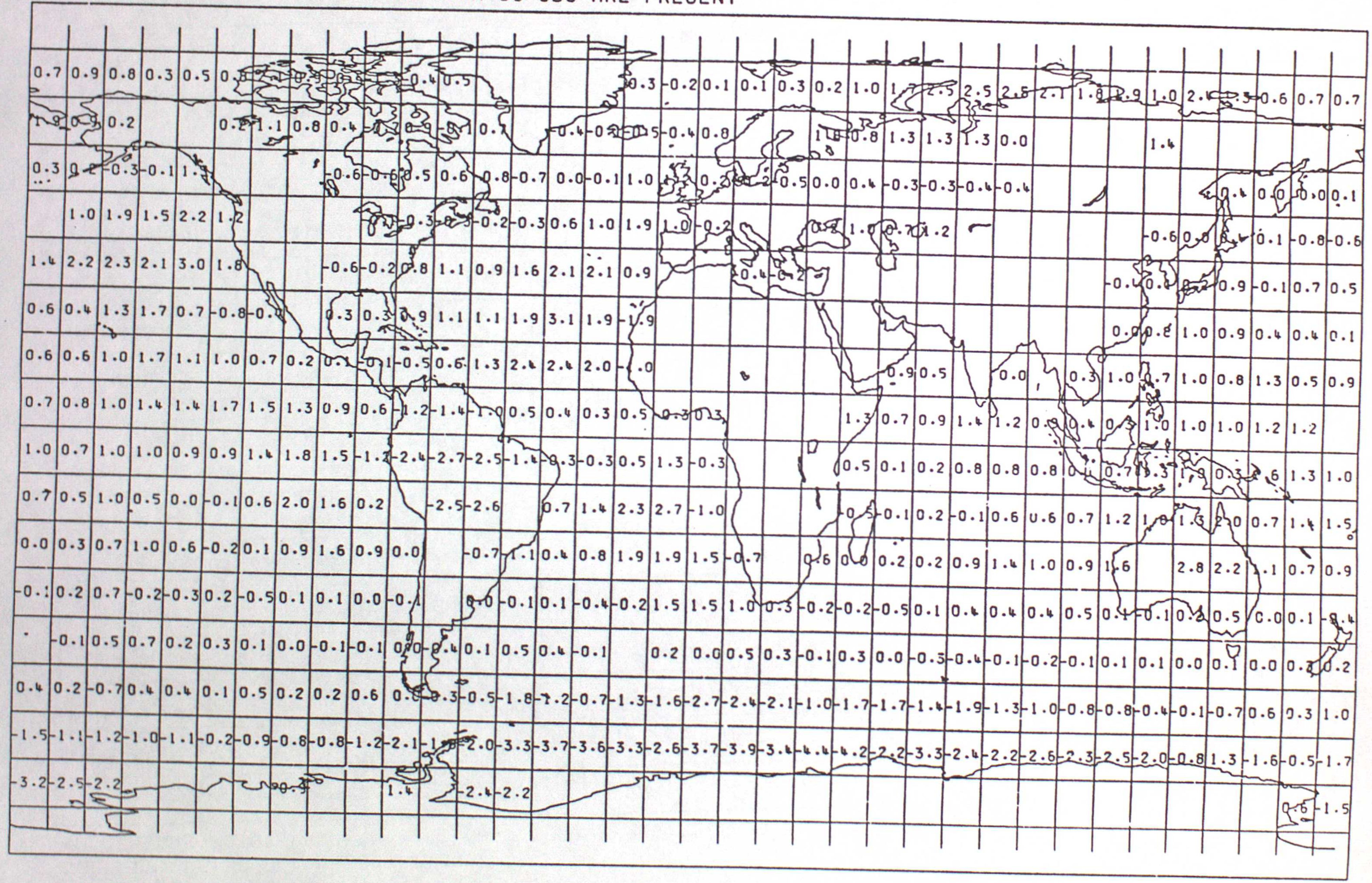


FIGURE 27

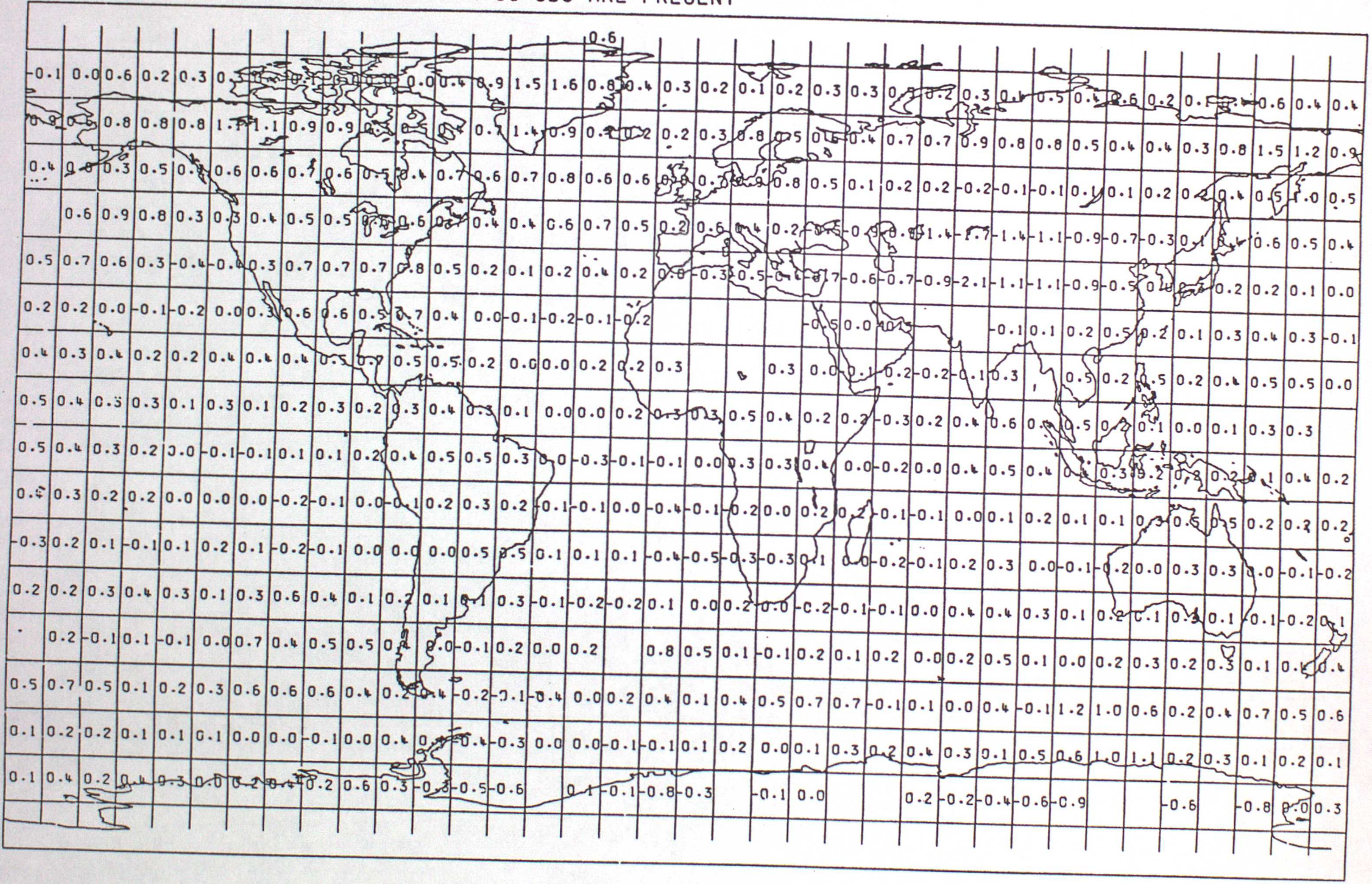
500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1994
NOAA-12. USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28



500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


0.6
-0.1 0.0 0.6 0.2 0.3 0.0 0.4 0.9 1.5 1.6 0.8 0.4 0.3 0.2 0.1 0.2 0.3 0.3 0.2 0.3 0.5 0.6 0.2 -0.6 0.4 0.4
0.8 0.8 0.8 1.1 0.9 0.9 0.7 1.4 0.9 0.2 0.2 0.3 0.8 0.5 0.4 0.7 0.7 0.9 0.8 0.8 0.5 0.4 0.4 0.3 0.8 1.5 1.2 0.9
0.4 0.3 0.5 0.6 0.6 0.7 0.6 0.7 0.6 0.7 0.8 0.6 0.6 0.6 0.9 0.8 0.5 0.1 0.2 0.2 -0.2 -0.1 -0.1 0.1 0.1 0.2 0.4 0.5 1.0 0.5
0.6 0.9 0.8 0.3 0.3 0.4 0.5 0.5 0.6 0.4 0.4 0.6 0.7 0.5 0.2 0.6 0.4 0.2 -0.5 -0.9 -0.8 -1.4 -1.7 -1.4 -1.1 -0.9 -0.7 -0.3 0.1 0.4 0.6 0.5 0.4
0.5 0.7 0.6 0.3 -0.4 -0.4 0.3 0.7 0.7 0.7 0.8 0.5 0.2 0.1 0.2 0.4 0.2 0.0 -0.3 0.5 -0.4 -0.7 -0.6 -0.7 -0.9 -2.1 -1.1 -1.1 -0.9 -0.5 0.2 0.2 0.1 0.0
0.2 0.2 0.0 -0.1 -0.2 0.0 0.3 0.6 0.6 0.5 0.7 0.4 0.0 -0.1 -0.2 -0.1 -0.2 -0.5 0.0 -0.1 0.1 0.2 0.5 0.2 0.1 0.3 0.4 0.3 -0.1
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0.5 0.4 0.3 0.3 0.1 0.3 0.1 0.2 0.3 0.2 0.3 0.4 0.3 0.1 0.0 0.0 0.2 0.3 0.3 0.5 0.4 0.2 0.2 -0.3 0.2 0.4 0.6 0.5 0.1 0.0 0.1 0.3 0.3
0.5 0.4 0.3 0.2 0.0 -0.1 -0.1 0.1 0.1 0.2 0.4 0.5 0.5 0.3 0.0 -0.3 -0.1 -0.1 0.0 0.3 0.3 0.4 0.0 -0.2 0.0 0.4 0.5 0.4 0.4 0.3 0.2 0.2 0.2 0.1 0.4 0.2
0.4 0.3 0.2 0.2 0.0 0.0 0.0 -0.2 -0.1 0.0 -0.1 0.2 0.3 0.2 -0.1 -0.1 0.0 -0.4 -0.1 -0.2 0.0 0.2 0.2 -0.1 -0.1 0.0 0.1 0.2 0.1 0.1 0.3 0.5 0.5 0.2 0.2 0.2
-0.3 0.2 0.1 -0.1 0.1 0.2 0.1 -0.2 -0.1 0.0 0.0 0.0 0.5 0.5 0.1 0.1 0.1 -0.4 -0.5 -0.3 -0.3 0.1 0.0 -0.2 -0.1 0.2 0.3 0.0 -0.1 -0.2 0.0 0.3 0.3 0.0 -0.1 -0.2
0.2 0.2 0.3 0.4 0.3 0.1 0.3 0.6 0.4 0.1 0.2 0.1 0.1 0.3 -0.1 -0.2 -0.2 0.1 0.0 0.2 0.0 -0.2 -0.1 -0.1 0.0 0.4 0.4 0.3 0.1 0.2 0.1 0.3 0.1 -0.1 -0.2 0.1
0.2 -0.1 0.1 -0.1 0.0 0.7 0.4 0.5 0.5 0.0 -0.1 0.2 0.0 0.2 0.8 0.5 0.1 -0.1 0.2 0.1 0.2 0.0 0.2 0.5 0.1 0.0 0.2 0.3 0.2 0.3 0.1 0.4 0.4
0.5 0.7 0.5 0.1 0.2 0.3 0.6 0.6 0.6 0.4 0.2 0.4 -0.2 -0.1 -0.4 0.0 0.2 0.4 0.1 0.4 0.5 0.7 0.7 -0.1 0.1 0.0 0.4 -0.1 1.2 1.0 0.6 0.2 0.4 0.7 0.5 0.6
0.1 0.2 0.2 0.1 0.1 0.1 0.0 0.0 -0.1 0.0 0.4 0.4 -0.4 -0.3 0.0 0.0 -0.1 -0.1 0.1 0.2 0.0 0.1 0.3 0.2 0.4 0.3 0.1 0.5 0.6 1.0 1.1 0.2 0.3 0.1 0.2 0.1
0.1 0.4 0.2 0.4 0.3 0.0 0.2 0.4 0.2 0.6 0.3 -0.3 -0.5 -0.6 0.1 -0.1 -0.8 -0.3 -0.1 0.0 0.2 -0.2 -0.4 -0.6 -0.9 -0.6 -0.8 0.0 0.3

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1994
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

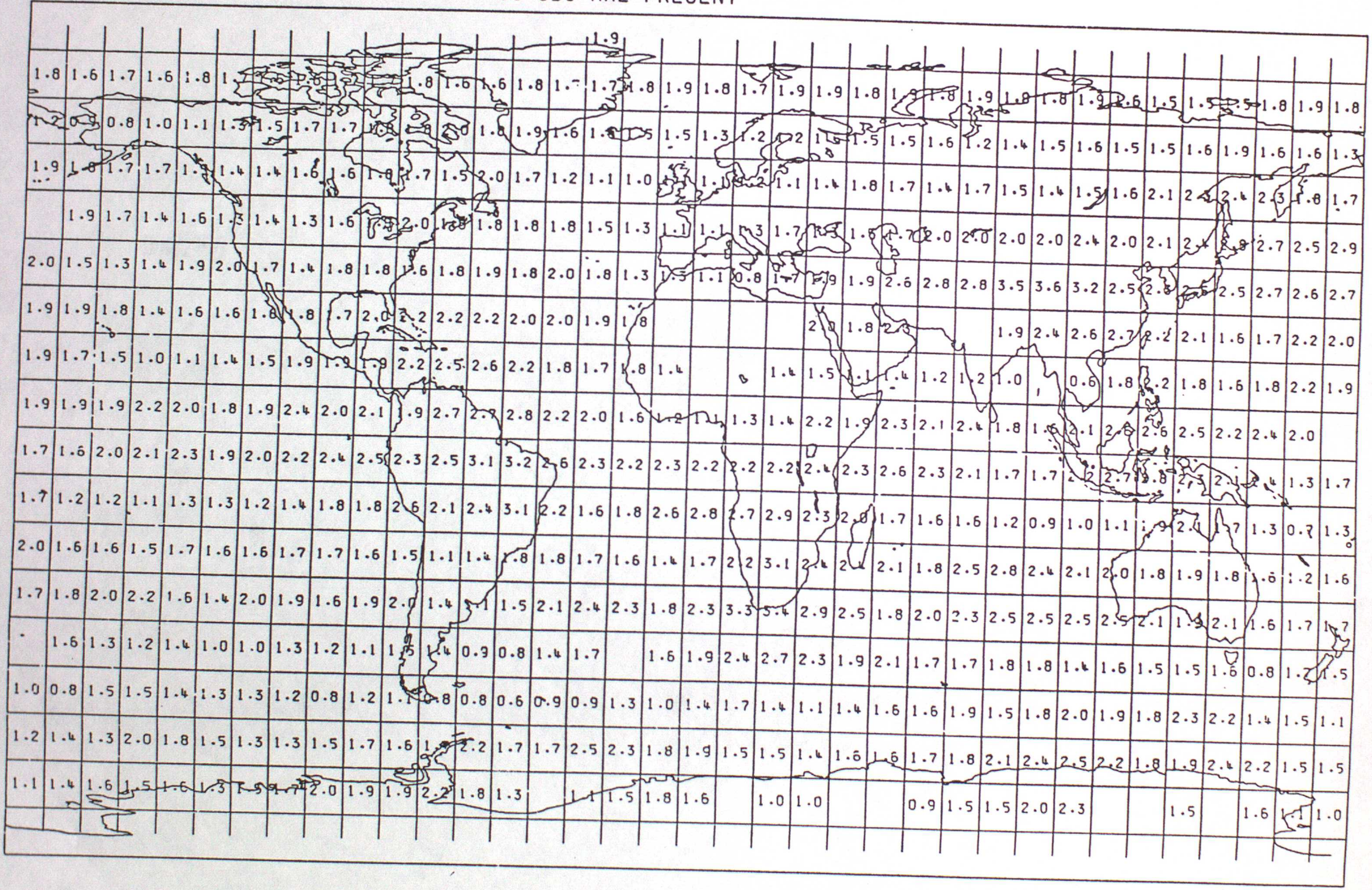
1.9
1.8 1.6 1.7 1.6 1.8 1.8 1.6 1.6 1.8 1.7 1.7 1.8 1.9 1.8 1.7 1.9 1.9 1.8 1.8 1.9 1.8 1.8 1.9 2.6 1.5 1.5 1.5 1.8 1.9 1.8
1.2 0.8 1.0 1.1 1.3 1.5 1.7 1.7 1.0 1.8 1.9 1.6 1.5 1.5 1.5 1.3 1.2 2 1.5 1.5 1.6 1.2 1.4 1.5 1.6 1.5 1.5 1.6 1.9 1.6 1.6 1.3
1.9 1.8 1.7 1.7 1.4 1.4 1.6 1.6 1.8 1.7 1.5 2.0 1.7 1.2 1.1 1.0 1.1 1.4 1.8 1.7 1.4 1.7 1.5 1.4 1.5 1.6 2.1 2.4 2.3 1.8 1.7
1.9 1.7 1.4 1.6 1.3 1.4 1.3 1.6 2.0 1.8 1.8 1.8 1.5 1.3 1.1 1.1 1.3 1.7 1.6 1.7 2.0 2.0 2.0 2.0 2.4 2.0 2.1 2.4 2.9 2.7 2.5 2.9
2.0 1.5 1.3 1.4 1.9 2.0 1.7 1.4 1.8 1.8 1.6 1.8 1.9 1.8 2.0 1.8 1.3 1.5 1.1 0.8 1.7 1.9 1.9 2.6 2.8 2.8 3.5 3.6 3.2 2.5 2.3 2.5 2.7 2.6 2.7
1.9 1.9 1.8 1.4 1.6 1.6 1.8 1.8 1.7 2.0 2.2 2.2 2.2 2.0 2.0 1.9 1.8 2.0 1.8 2.3 1.9 2.4 2.6 2.7 2.2 2.1 1.6 1.7 2.2 2.0
1.9 1.7 1.5 1.0 1.1 1.4 1.5 1.9 1.9 1.9 2.2 2.5 2.6 2.2 1.8 1.7 1.8 1.4 1.4 1.5 1.1 1.4 1.2 1.2 1.0 0.6 1.8 2.2 1.8 1.6 1.8 2.2 1.9
1.9 1.9 1.9 2.2 2.0 1.8 1.9 2.4 2.0 2.1 1.9 2.7 2.7 2.8 2.2 2.0 1.6 1.2 1.1 1.3 1.4 2.2 1.9 2.3 2.1 2.4 1.8 1.6 2.1 2.6 2.6 2.5 2.2 2.4 2.0
1.7 1.6 2.0 2.1 2.3 1.9 2.0 2.2 2.4 2.5 2.3 2.5 3.1 3.2 2.6 2.3 2.2 2.3 2.2 2.2 2.2 2.4 2.3 2.6 2.3 2.1 1.7 1.7 2.2 2.7 2.8 2.3 2.1 2.4 1.3 1.7
1.7 1.2 1.2 1.1 1.3 1.3 1.2 1.4 1.8 1.8 2.6 2.1 2.4 3.1 2.2 1.6 1.8 2.6 2.8 2.7 2.9 2.3 2.0 1.7 1.6 1.6 1.2 0.9 1.0 1.1 1.9 2.1 1.7 1.3 0.7 1.3
2.0 1.6 1.6 1.5 1.7 1.6 1.6 1.7 1.7 1.6 1.5 1.1 1.4 1.8 1.8 1.7 1.6 1.4 1.7 2 2 3.1 2.4 2.4 2.1 1.8 2.5 2.8 2.4 2.1 2.0 1.8 1.9 1.8 1.6 1.2 1.6
1.7 1.8 2.0 2.2 1.6 1.4 2.0 1.9 1.6 1.9 2.0 1.4 1.1 1.5 2.1 2.4 2.3 1.8 2.3 3.3 3.4 2.9 2.5 1.8 2.0 2.3 2.5 2.5 2.5 2.5 2.1 1.9 2.1 1.6 1.7 1.7
1.6 1.3 1.2 1.4 1.0 1.0 1.3 1.2 1.1 1.5 1.4 0.9 0.8 1.4 1.7 1.6 1.9 2.4 2.7 2.3 1.9 2.1 1.7 1.7 1.8 1.8 1.4 1.6 1.5 1.5 1.6 0.8 1.7 1.5
1.0 0.8 1.5 1.5 1.4 1.3 1.3 1.2 0.8 1.2 1.1 0.8 0.8 0.6 0.9 0.9 1.3 1.0 1.4 1.7 1.4 1.1 1.4 1.6 1.6 1.9 1.5 1.8 2.0 1.9 1.8 2.3 2.2 1.4 1.5 1.1
1.2 1.4 1.3 2.0 1.8 1.5 1.3 1.3 1.5 1.7 1.6 1.4 2.2 1.7 1.7 2.5 2.3 1.8 1.9 1.5 1.5 1.4 1.6 1.6 1.7 1.8 2.1 2.4 2.5 2.2 1.8 1.9 2.4 2.2 1.5 1.5
1.1 1.4 1.6 1.5 1.6 1.3 1.5 1.7 2.0 1.9 1.9 2.2 1.8 1.3 1.1 1.5 1.8 1.6 1.0 1.0 0.9 1.5 1.5 2.0 2.3 1.5 1.6 1.1 1.0

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the wind speed > 3 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA-LEVEL PRESSURE											
13556	23.8	-52.0	ALL	MSLP	SUR	154	0	0	1.1	0.7	1.3
13561	27.0	-31.9	ALL	MSLP	SUR	143	0	0	0.9	0.5	1.1
20503	14.6	-27.6	ALL	MSLP	SUR	1	0	0	0.0	6.5	6.5
25556	76.2	-13.7	ALL	MSLP	SUR	25	0	0	1.7	-0.3	1.8
41522	29.6	-69.6	ALL	MSLP	SUR	291	0	0	0.8	0.8	1.1
44743	31.5	-40.6	ALL	MSLP	SUR	383	11	3	0.8	0.0	0.8
44761	60.9	-20.9	ALL	MSLP	SUR	1310	4	0	1.5	0.0	1.5
44764	56.2	-43.1	ALL	MSLP	SUR	202	0	0	1.4	-0.4	1.4
44766	60.8	-49.1	ALL	MSLP	SUR	1060	46	4	1.5	-0.6	1.6
44767	59.9	-31.5	ALL	MSLP	SUR	1420	1	0	1.1	0.3	1.1
44768	53.6	-26.4	ALL	MSLP	SUR	1198	2	0	1.4	0.1	1.4
44769	55.2	-28.8	ALL	MSLP	SUR	1399	1	0	1.4	0.1	1.4
44770	60.1	-35.1	ALL	MSLP	SUR	1313	3	0	1.3	-0.2	1.3
44771	57.6	-15.2	ALL	MSLP	SUR	1309	3	0	1.4	0.3	1.4
44774	52.2	-33.0	ALL	MSLP	SUR	1159	1	0	1.5	0.0	1.5
44775	52.6	-45.4	ALL	MSLP	SUR	32	0	0	0.9	0.2	1.0
44776	54.7	-42.6	ALL	MSLP	SUR	31	0	0	1.0	-0.2	1.0
44777	50.3	-3.9	ALL	MSLP	SUR	2	1	50	0.0	3.9	3.9
44778	62.9	-19.8	ALL	MSLP	SUR	1176	3	0	3.5	-1.4	3.8
62501	47.6	-10.1	ALL	MSLP	SUR	468	0	0	1.0	-0.4	1.1
62502	44.9	-4.3	ALL	MSLP	SUR	159	0	0	1.2	-0.1	1.2
62503	47.1	-7.4	ALL	MSLP	SUR	191	0	0	1.1	0.5	1.2
62504	49.1	-6.9	ALL	MSLP	SUR	169	0	0	1.2	0.0	1.2
62505	48.5	-9.9	ALL	MSLP	SUR	25	0	0	0.9	0.4	1.0
62506	45.8	-5.4	ALL	MSLP	SUR	469	0	0	0.9	-0.2	1.0
62507	47.4	-11.9	ALL	MSLP	SUR	470	0	0	1.0	0.4	1.1
62514	41.6	-15.1	ALL	MSLP	SUR	202	0	0	0.9	-1.0	1.3
62524	31.3	-19.4	ALL	MSLP	SUR	816	2	0	1.5	-0.2	1.5
62674	59.0	-31.5	ALL	MSLP	SUR	153	0	0	1.0	-1.3	1.7
62675	57.8	-27.7	ALL	MSLP	SUR	183	0	0	1.0	-1.1	1.5
62695	30.3	-19.9	ALL	MSLP	SUR	516	0	0	0.8	0.0	0.8
62696	62.6	-12.1	ALL	MSLP	SUR	1391	2	0	1.0	0.2	1.0
62721	57.1	-23.0	ALL	MSLP	SUR	174	0	0	1.0	0.1	1.0
63662	74.4	-5.8	ALL	MSLP	SUR	537	0	0	1.0	0.2	1.0
64528	61.0	-27.0	ALL	MSLP	SUR	1176	3	0	1.1	-0.1	1.2
64544	62.1	-30.0	ALL	MSLP	SUR	179	0	0	0.9	0.1	0.9
65592	62.5	-36.4	ALL	MSLP	SUR	1273	23	2	1.2	-0.3	1.2
65593	59.9	-39.8	ALL	MSLP	SUR	379	101	27	3.0	2.0	3.6
WIND SPEED											
13556	23.8	-52.0	ALL	SPEED	SUR	458	0	0	1.1	-2.1	2.4
13561	27.0	-31.9	ALL	SPEED	SUR	434	0	0	1.0	-1.0	1.5
20503	14.6	-27.6	ALL	SPEED	SUR	1	0	0	0.0	3.0	3.0
44764	56.2	-43.1	ALL	SPEED	SUR	168	0	0	1.9	-0.1	1.9
62502	44.9	-4.3	ALL	SPEED	SUR	455	0	0	1.7	0.7	1.9
62505	48.5	-9.9	ALL	SPEED	SUR	25	0	0	1.9	-1.0	2.1
62506	45.8	-5.4	ALL	SPEED	SUR	420	0	0	1.6	0.8	1.8
64544	62.1	-30.0	ALL	SPEED	SUR	177	0	0	2.1	-4.6	5.0
WIND DIRECTION											
13556	23.8	-52.0	ALL	DIRN.	SUR	307	0	0	13.3	12.3	18.2
13561	27.0	-31.9	ALL	DIRN.	SUR	347	0	0	11.6	5.2	12.8
20503	14.6	-27.6	ALL	DIRN.	SUR	1	0	0	0.0	-2.7	2.7
44764	56.2	-43.1	ALL	DIRN.	SUR	109	0	0	24.0	19.7	31.1
62502	44.9	-4.3	ALL	DIRN.	SUR	237	0	0	24.1	-5.6	24.7
62505	48.5	-9.9	ALL	DIRN.	SUR	25	0	0	52.3	0.1	52.3
62506	45.8	-5.4	ALL	DIRN.	SUR	286	0	0	21.2	-6.3	22.1
64544	62.1	-30.0	ALL	DIRN.	SUR	149	0	0	115.1	-91.8	147.2

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	1512	0	2	2.1	-0.3	1525	0	2	0	7.3	1.7
AAN	49	2	6	2.0	-1.0	49	0	4	0	7.9	0.9
ACA	700	0	1	2.2	-0.2	721	0	1	1	6.4	0.6
AEA	122	0	3	1.5	-0.2	120	0	5	0	8.9	0.5
AEL	120	1	3	1.4	-0.3	125	0	4	0	8.6	0.7
AFL	63	3	100	3.5	1.7	63	0	100	0	12.4	-0.5
AFR	505	0	4	2.1	-0.4	522	0	5	0	8.0	1.5
AIC	27	4	4	2.3	-0.6	29	0	10	0	14.9	2.0
AME	36	0	0	1.5	-0.5	36	0	0	0	9.1	1.0
AMT	24	0	21	3.7	2.1	27	0	0	0	9.5	0.1
AMX	127	0	13	3.3	0.8	130	0	2	0	8.2	0.5
ANZ	115	1	4	2.2	-1.1	118	0	9	4	7.8	0.4
AOM	191	0	4	1.9	0.5	192	0	4	0	8.6	1.1
ATN	162	2	4	2.6	-2.0	164	0	5	0	11.9	2.8
AUA	59	2	5	2.5	-1.4	59	0	8	0	9.0	2.0
AVA	86	1	2	2.1	0.2	86	0	2	0	8.1	0.5
AVY	21	0	10	2.4	-1.0	22	0	9	0	9.0	0.2
AZA	289	0	3	2.2	0.3	296	0	3	0	7.9	2.1
BAL	132	5	19	2.1	-0.4	134	0	14	0	7.8	2.3
BAW	1049	0	4	2.2	-0.2	1080	0	5	1	8.3	1.6
BBB	31	0	19	2.2	-0.6	32	0	22	0	8.0	2.9
BWA	64	0	2	1.9	0.5	67	0	3	1	9.5	1.2
CDN	497	0	4	2.2	0.1	498	0	5	1	6.7	1.5
CFG	241	0	100	2.0	-1.2	242	0	3	0	8.3	1.8
CKS	21	5	100	4.9	-3.2	20	0	100	0	17.2	7.0
CKT	39	0	0	1.8	0.2	40	0	0	0	9.0	1.2
CLI	172	0	1	2.1	0.0	178	0	1	0	7.1	1.3
CLX	57	0	4	2.6	-1.2	63	0	5	2	7.0	0.6
CMM	130	0	3	2.0	-0.1	130	0	2	0	6.0	1.6
COA	243	0	1	1.6	0.4	251	0	2	1	7.1	1.1
CRL	66	0	6	1.7	0.3	67	0	6	0	7.1	1.2
CTM	27	0	100	3.6	-2.2	27	0	19	0	7.7	3.5
CUB	60	2	10	2.5	0.3	63	0	8	0	9.8	1.3
DAL	1688	0	2	2.0	-0.3	1708	0	2	0	8.3	1.5
DHL	148	1	16	4.4	-1.7	151	1	100	0	10.6	0.5
DLH	1238	0	6	2.2	-0.3	1267	0	7	2	7.3	1.4
DOA	72	0	29	1.7	-0.8	76	0	28	0	8.8	0.4
EIA	48	0	25	1.9	-0.2	49	0	27	0	13.6	4.0
ELY	90	0	0	1.6	-0.5	95	0	2	1	9.3	1.8
FDX	264	1	2	1.9	0.6	272	0	1	0	8.1	1.4
FIN	325	0	2	2.2	0.2	326	0	3	2	7.8	1.5
GAF	112	0	2	2.0	-0.4	113	0	2	0	8.1	1.8
HLF	49	0	100	1.6	-0.4	50	0	0	0	9.4	0.3
IBE	724	0	17	1.8	-0.3	718	0	17	0	8.8	1.1
ICE	269	1	1	2.0	-0.3	266	0	2	0	6.9	1.4
KLM	1092	0	2	2.0	0.1	1104	0	3	1	7.5	1.5
LDA	136	0	100	2.1	-1.3	140	0	11	0	7.6	0.8
LDI	61	0	100	2.1	-1.2	64	0	3	0	7.6	1.3
LIB	54	0	6	1.6	0.1	54	0	7	0	10.0	-0.2
LOT	493	1	3	2.4	-0.4	492	0	1	0	7.9	1.3
LTU	292	0	5	1.9	0.2	286	0	5	0	8.2	1.5
LWD	34	0	26	2.5	1.3	34	0	26	0	8.2	3.0
MAH	35	0	0	2.7	-1.6	38	0	3	0	6.6	1.1
MOD	26	0	8	2.4	1.4	25	0	20	0	14.4	6.7
MPH	337	0	2	2.1	-0.4	336	0	2	0	7.2	0.9
NWA	1722	0	3	2.1	0.5	1767	0	2	0	8.2	1.4
OAL	31	0	6	2.0	0.6	31	0	6	0	7.6	2.4
RIA	35	17	26	4.1	2.8	35	0	20	0	15.2	4.7
ROY	30	0	0	2.8	0.6	33	0	3	0	10.0	1.8

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	89	1	16	1.7	-0.1	91	0	19	0	9.5	0.1
SAB	50	0	0	1.7	0.4	51	0	4	2	7.7	0.2
SAS	1210	0	1	2.1	-0.3	1212	0	3	1	7.1	0.7
SIA	38	3	8	2.6	-0.2	38	0	3	0	11.6	1.1
SPP	71	1	3	1.6	-0.5	69	0	1	0	7.3	2.0
SVA	95	0	4	1.7	0.0	107	0	4	0	8.1	1.6
SWR	162	0	2	1.8	0.0	167	0	3	0	8.5	1.6
TAP	269	0	1	2.0	-0.2	266	0	2	0	8.5	1.9
TIH	129	0	2	2.5	0.1	133	0	2	1	6.4	0.9
TOW	81	0	2	1.9	-0.2	82	0	4	0	9.0	0.9
TSC	205	0	9	2.7	-0.5	211	0	7	0	9.8	2.4
TWA	783	1	3	1.9	0.0	775	0	3	1	8.7	1.8
UAL	1510	0	3	2.5	-0.4	1533	0	4	2	7.6	0.9
ULE	92	0	2	1.4	-0.3	94	0	3	1	7.0	1.0
UPS	230	1	15	1.8	-0.4	236	0	17	0	9.3	1.9
USA	168	0	2	2.1	-0.5	170	0	3	0	7.4	1.9
VIA	75	1	1	1.6	0.3	79	0	3	0	8.7	0.9
VIR	130	0	5	2.3	-0.6	133	0	5	0	8.4	2.6
WOA	65	0	2	2.0	0.3	66	0	0	0	7.6	2.5
BA	8751	0	7	1.8	0.6	8716	0	6	0	7.8	1.7
KL	821	0	100	2.6	2.0	821	0	8	0	7.5	1.8
NW	40	0	13	1.7	0.6	40	0	5	0	5.7	-0.5
M	87	0	7	2.9	0.5	87	0	7	0	12.3	1.0
N	114	3	8	3.1	0.8	121	0	1	0	9.0	0.0

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	12	Z	100	18	0	14.7	28.0	23.8
EHOA	00	Z	100	1	0	0.0	9.0	9.0
EHOA	12	Z	100	21	0	11.6	11.7	-1.9
FNOR	00	Z	100	10	0	11.8	15.1	9.4
FNOR	12	Z	100	9	0	17.0	17.2	-2.7
FNOU	00	Z	100	11	0	13.6	26.2	22.5
FNOU	12	Z	100	12	0	20.3	21.1	-5.8
FNPH	00	Z	100	11	0	13.8	18.2	11.8
FNPH	12	Z	100	12	0	11.6	11.6	-0.4
FNRS	00	Z	100	12	0	13.5	13.7	2.4
FNRS	12	Z	100	11	0	13.7	16.3	-8.8
GACA	00	Z	100	23	0	14.9	24.5	19.5
GACA	12	Z	100	23	0	17.1	18.5	7.2
JIVB	00	Z	100	1	0	0.0	23.0	23.0
LDWR	00	Z	100	26	0	11.0	11.0	0.6
LDWR	12	Z	100	29	0	13.1	15.1	-7.4
OXYL	00	Z	100	18	0	47.5	47.9	5.9
OXYL	12	Z	100	15	0	16.8	32.1	27.3
OZJP	00	Z	100	18	0	16.3	27.3	21.9
OZJP	12	Z	100	13	1	37.8	49.6	32.2
PH	00	Z	100	1	0	0.0	14.0	14.0
SHIPAA	00	Z	100	12	0	11.1	20.8	17.6
SHIPAA	12	Z	100	10	0	15.0	16.0	5.4
UUPB	00	Z	100	1	0	0.0	16.0	16.0
V2LV	00	Z	100	17	0	20.1	20.4	2.9
V2LV	12	Z	100	12	0	15.2	27.2	22.5
V2LX	00	Z	100	25	0	15.1	16.9	7.7
V2LX	12	Z	100	24	0	15.7	17.3	7.3
03953	00	Z	100	28	0	10.8	27.1	24.9
03953	12	Z	100	27	0	11.1	22.5	19.6
04018	00	Z	100	21	0	11.9	25.9	23.0
04018	12	Z	100	25	0	14.5	29.9	26.2
04220	00	Z	100	29	0	10.0	29.0	27.2
04220	12	Z	100	29	0	11.0	34.4	32.6
04270	00	Z	100	29	0	17.4	26.7	20.2
04270	12	Z	100	30	0	12.8	33.2	30.6
04339	00	Z	100	29	0	11.8	23.4	20.3
04339	12	Z	100	30	0	11.6	25.2	22.4
04360	00	Z	100	29	0	10.3	27.0	25.0
04360	12	Z	100	30	0	13.6	31.7	28.6
08001	00	Z	100	27	0	17.4	28.7	22.9
08001	12	Z	100	28	0	13.0	14.8	7.0
08508	00	Z	100	29	0	14.9	18.7	11.4
08508	12	Z	100	28	1	22.9	23.5	5.1
08594	00	Z	100	24	0	10.6	12.1	-5.8
08594	12	Z	100	23	0	20.2	24.3	-13.5
60020	00	Z	100	27	0	18.8	19.8	-6.3
60020	12	Z	100	30	0	16.5	20.4	-12.0
71600	00	Z	100	28	0	21.2	21.2	0.0
71600	12	Z	100	28	0	20.4	37.3	31.2
72201	00	Z	100	28	1	28.3	49.9	41.1
72201	12	Z	100	29	0	25.6	53.0	46.3
72304	00	Z	100	15	0	18.0	27.0	20.1
72304	12	Z	100	15	0	18.5	58.3	55.3
72402	00	Z	100	22	0	25.6	45.3	37.4
72402	12	Z	100	29	0	18.4	52.1	48.7
72606	00	Z	100	28	0	18.7	19.4	5.4
72606	12	Z	100	30	0	18.0	33.9	28.8
74494	00	Z	100	28	0	24.4	25.5	7.1
74494	12	Z	100	26	0	17.1	32.1	27.2

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	12	Z	500	19	0	10.8	15.0	10.5
EHOA	00	Z	500	1	0	0.0	21.0	21.0
EHOA	12	Z	500	22	0	8.8	11.9	8.0
FNOR	00	Z	500	10	0	5.4	9.9	8.3
FNOR	12	Z	500	10	0	12.9	13.1	1.7
FNOU	00	Z	500	12	0	7.3	10.3	7.3
FNOU	12	Z	500	13	0	7.9	8.0	-1.1
FNPH	00	Z	500	13	0	7.9	8.1	1.8
FNPH	12	Z	500	12	0	7.0	7.1	-0.7
FNRS	00	Z	500	12	0	7.3	11.6	9.1
FNRS	12	Z	500	12	0	8.8	8.8	1.1
GACA	00	Z	500	23	0	12.9	14.6	6.9
GACA	12	Z	500	23	0	14.5	14.5	0.3
JIVB	00	Z	500	1	0	0.0	13.0	13.0
LDWR	00	Z	500	26	0	11.0	13.5	7.8
LDWR	12	Z	500	28	0	11.8	11.9	-1.1
OXYL	00	Z	500	18	0	20.5	21.0	4.6
OXYL	12	Z	500	17	0	17.5	23.5	15.6
OZJP	00	Z	500	18	0	9.9	16.4	13.1
OZJP	12	Z	500	14	0	20.4	22.9	10.4
PH	00	Z	500	1	0	0.0	9.0	-9.0
SHIPAA	00	Z	500	13	0	9.3	10.4	-4.6
SHIPAA	12	Z	500	12	0	5.9	12.2	-10.7
UUPB	00	Z	500	1	0	0.0	1.0	-1.0
V2LV	00	Z	500	18	0	13.6	14.0	-3.3
V2LV	12	Z	500	14	0	10.9	11.0	1.6
V2LX	00	Z	500	25	0	13.0	14.0	5.1
V2LX	12	Z	500	24	0	8.4	8.9	3.1
03953	00	Z	500	29	0	9.6	12.9	8.6
03953	12	Z	500	28	0	10.0	10.9	4.3
04018	00	Z	500	23	0	13.7	19.3	13.7
04018	12	Z	500	25	0	14.9	17.2	8.7
04220	00	Z	500	29	0	11.1	15.4	10.7
04220	12	Z	500	29	0	9.1	14.0	10.6
04270	00	Z	500	29	0	16.3	17.3	5.6
04270	12	Z	500	30	0	12.2	14.7	8.3
04339	00	Z	500	29	0	11.3	17.9	13.8
04339	12	Z	500	30	0	13.4	14.8	6.3
04360	00	Z	500	29	0	10.5	13.3	8.2
04360	12	Z	500	30	0	10.1	11.3	5.2
08001	00	Z	500	28	0	10.7	15.6	11.4
08001	12	Z	500	28	0	8.7	8.9	-2.1
08508	00	Z	500	29	0	8.0	13.3	10.6
08508	12	Z	500	30	0	24.9	25.2	3.6
08594	00	Z	500	25	0	7.5	13.7	11.4
08594	12	Z	500	25	0	9.3	11.5	6.7
60020	00	Z	500	27	0	13.3	14.9	6.7
60020	12	Z	500	30	0	8.5	8.6	0.6
71600	00	Z	500	29	0	9.5	9.7	-1.9
71600	12	Z	500	28	0	8.3	11.4	7.8
72201	00	Z	500	28	0	9.6	17.3	14.4
72201	12	Z	500	28	0	6.7	14.9	13.4
72304	00	Z	500	16	0	7.3	7.7	-2.6
72304	12	Z	500	17	0	15.7	21.7	14.9
72402	00	Z	500	24	0	15.8	16.0	2.4
72402	12	Z	500	30	0	11.2	17.7	13.7
72606	00	Z	500	29	0	7.3	8.0	-3.3
72606	12	Z	500	30	0	6.8	8.9	5.7
74494	00	Z	500	28	0	6.7	7.7	-4.0
74494	12	Z	500	30	0	7.8	8.0	1.8

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in $m\ s^{-1}$

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	12	V	100	19	0	0	5.5	-0.2	0.4
EHOA	00	V	100	1	0	0	2.0	-2.3	2.7
EHOA	12	V	100	21	0	0	2.0	-2.0	-0.5
FNOR	00	V	100	10	0	0	3.6	-1.0	0.5
FNOR	12	V	100	9	0	0	2.3	-1.7	-1.1
FNOU	00	V	100	11	0	0	2.3	-0.4	-1.3
FNOU	12	V	100	11	0	0	3.7	-0.5	-0.6
FNPH	00	V	100	9	0	0	2.6	0.0	-0.7
FNPH	12	V	100	13	0	0	2.2	-1.8	-1.0
FNRS	00	V	100	11	0	0	2.7	0.7	-0.2
FNRS	12	V	100	11	0	0	3.7	-1.7	-1.5
GACA	00	V	100	23	0	0	2.5	-1.8	-0.6
GACA	12	V	100	23	0	0	2.5	-2.0	-0.5
JIVB	00	V	100	1	0	0	2.5	-1.6	-1.3
LDWR	00	V	100	25	0	0	2.5	0.4	0.2
LDWR	12	V	100	28	0	0	2.2	-0.1	-0.7
OXYL	00	V	100	17	0	0	1.7	-0.5	0.2
OXYL	12	V	100	15	0	0	1.8	-0.6	-0.6
OZJP	00	V	100	18	0	0	2.4	0.2	0.1
OZJP	12	V	100	14	0	0	2.4	-0.3	-1.6
PH	00	V	100	1	0	0	2.1	-4.5	-7.5
SHIPAA	00	V	100	10	0	0	7.1	0.4	0.9
SHIPAA	12	V	100	10	0	0	3.7	0.9	0.1
UUPB	00	V	100	1	0	0	2.8	-2.0	-3.9
V2LV	00	V	100	17	0	0	2.8	0.8	0.2
V2LV	12	V	100	12	0	0	2.4	-0.6	-0.5
V2LX	00	V	100	24	0	0	1.9	1.0	0.7
V2LX	12	V	100	24	0	0	2.5	0.0	0.4
03953	00	V	100	28	0	0	2.0	-0.6	-0.1
03953	12	V	100	26	0	0	2.1	-1.1	-1.0
04018	00	V	100	21	0	0	3.0	-0.7	0.2
04018	12	V	100	25	0	0	1.9	-0.4	-0.6
04220	00	V	100	28	0	0	1.5	-0.1	0.2
04220	12	V	100	29	0	0	1.4	-0.6	-0.6
04270	00	V	100	29	0	0	2.1	-0.1	0.5
04270	12	V	100	30	0	0	2.1	-0.6	-0.7
04339	00	V	100	29	0	0	1.9	0.6	-0.5
04339	12	V	100	30	0	0	1.5	-1.1	-0.8
04360	00	V	100	29	0	0	1.7	-0.2	0.0
04360	12	V	100	30	0	0	1.5	-1.5	-0.7
08001	00	V	100	27	0	0	3.5	0.7	0.6
08001	12	V	100	27	0	0	3.0	-1.6	-0.7
08508	00	V	100	29	0	0	3.2	1.2	2.4
08508	12	V	100	28	0	0	3.0	-0.1	1.1
08594	00	V	100	24	0	0	2.9	-0.4	0.2
08594	12	V	100	23	0	0	3.0	0.0	-0.1
60020	00	V	100	26	0	0	4.8	-0.2	0.5
60020	12	V	100	29	0	0	3.4	-1.7	0.0
71600	00	V	100	26	0	0	2.4	-1.4	0.0
71600	12	V	100	27	0	0	2.7	-0.5	-1.1
72201	00	V	100	26	0	0	2.2	1.5	1.3
72201	12	V	100	27	0	0	2.5	-0.9	1.1
72304	00	V	100	15	0	0	2.8	0.2	3.0
72304	12	V	100	15	0	0	3.5	1.7	-0.8
72402	00	V	100	19	0	0	2.7	0.2	-1.0
72402	12	V	100	26	0	0	2.5	0.3	-1.6
72606	00	V	100	27	0	0	2.6	-0.2	0.2
72606	12	V	100	30	0	0	2.7	0.0	-1.8
74494	00	V	100	26	0	0	2.8	-0.8	-0.3
74494	12	V	100	17	0	0	3.0	-1.3	-2.5

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:July, 94

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	12	V	500	18	0	0	6.2	0.2	-0.7
EHOA	00	V	500	1	0	0	3.7	-0.5	1.0
EHOA	12	V	500	22	0	0	3.7	0.2	2.7
FNOR	00	V	500	10	0	0	4.1	0.6	1.0
FNOR	12	V	500	10	0	0	3.1	1.4	1.2
FNOU	00	V	500	12	0	0	2.0	-2.0	-1.9
FNOU	12	V	500	13	0	0	4.2	-0.6	-0.2
FNPH	00	V	500	13	0	0	3.6	1.0	0.8
FNPH	12	V	500	12	0	0	3.1	-0.3	0.5
FNRS	00	V	500	12	0	0	2.6	-0.1	0.1
FNRS	12	V	500	12	0	0	3.0	-0.9	-0.2
GACA	00	V	500	23	0	0	2.1	0.1	-1.7
GACA	12	V	500	23	0	0	3.0	-1.8	0.6
JIVB	00	V	500	1	0	0	3.7	-2.0	0.1
LDWR	00	V	500	26	0	0	3.7	-0.6	-0.3
LDWR	12	V	500	27	0	0	2.6	-0.3	0.3
OXYL	00	V	500	17	0	5	2.9	1.3	1.7
OXYL	12	V	500	16	0	0	5.6	-0.4	0.1
OZJP	00	V	500	18	0	0	2.6	-0.2	0.3
OZJP	12	V	500	14	0	0	2.6	-1.3	-0.8
PH	00	V	500	1	0	0	3.6	2.8	0.7
SHIPAA	00	V	500	13	0	0	5.8	-0.6	0.4
SHIPAA	12	V	500	12	0	0	2.9	-2.1	-0.4
UUPB	00	V	500	1	0	100	2.1	1.4	3.3
V2LV	00	V	500	18	0	0	2.1	-0.6	-0.2
V2LV	12	V	500	14	0	0	2.8	-1.6	0.7
V2LX	00	V	500	25	0	0	2.8	0.2	0.7
V2LX	12	V	500	23	0	0	2.6	0.1	1.0
03953	00	V	500	29	0	0	2.6	1.0	0.1
03953	12	V	500	28	0	0	3.6	0.0	0.9
04018	00	V	500	23	0	0	3.2	0.3	1.2
04018	12	V	500	25	0	0	3.8	0.1	-0.2
04220	00	V	500	28	0	0	3.3	0.0	1.0
04220	12	V	500	29	0	0	3.8	0.7	0.2
04270	00	V	500	29	0	0	3.3	-0.8	-0.1
04270	12	V	500	30	0	0	3.7	-0.9	0.1
04339	00	V	500	29	0	0	3.1	1.2	0.0
04339	12	V	500	30	0	0	3.0	0.2	0.6
04360	00	V	500	29	0	0	3.3	0.3	-0.1
04360	12	V	500	30	0	0	2.5	-1.1	-0.1
08001	00	V	500	28	0	3	3.2	1.5	-0.9
08001	12	V	500	28	0	0	3.7	-0.9	0.2
08508	00	V	500	29	0	0	4.5	-0.2	-0.1
08508	12	V	500	30	0	0	2.6	-1.1	-0.8
08594	00	V	500	25	0	4	2.2	-1.2	-0.8
08594	12	V	500	25	0	0	4.2	-1.3	-1.9
60020	00	V	500	27	0	0	4.3	-0.5	0.4
60020	12	V	500	30	0	0	2.3	-1.3	-0.9
71600	00	V	500	28	0	0	3.9	0.0	-0.6
71600	12	V	500	27	0	0	3.1	1.3	1.0
72201	00	V	500	27	0	0	3.2	1.7	0.1
72201	12	V	500	27	0	0	1.9	1.2	0.4
72304	00	V	500	16	0	0	4.1	0.0	0.1
72304	12	V	500	17	0	0	2.0	1.4	-0.5
72402	00	V	500	22	0	0	4.0	0.3	-0.4
72402	12	V	500	26	0	0	3.3	-0.3	1.2
72606	00	V	500	28	0	0	3.1	-0.8	-0.3
72606	12	V	500	30	0	0	3.2	0.1	1.9
74494	00	V	500	28	0	0	2.5	-0.1	0.1
74494	12	V	500	30	0	0	1.7	-0.2	1.4

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45